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# Factors related to the occupations of Iowa farm male high school graduates

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# FACTORS RELATED TO THE OCCUPATIONS OF IOWA FARM MALE HIGH SCHOOL GRADUATES

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# INTRODUCTION

The impact of the technological revolution in agriculture on the occupational opportunities for rural youth has been profound. During the past several decades this revolution has affected the structure of agriculture such that the number of opportunities for entry into farming has been declining due largely to an increase in the substitution of capital for labor in farming. Concomitantly, the advent of these technological changes has created new opportunities in off-farm agricultural occupations for young men with agricultural backgrounds.

The 1960 census figures for Iowa (39) indicate that the number of employed persons engaged in agricultural occupations decreased 26.2 percent from 1950 to 1960 and 32.1 percent from 1940 to 1960. Furthermore, Smith (37, p. 16) has predicted that only about 15 percent of the farm-reared boys will have an opportunity to enter farming in the 1960's. These figures underline the need for careful evaluation and planning by educators and others concerned with human resource imputs in agriculture. The decline in farming opportunities accompanied by the new demands for workers in off-farm agricultural occupations should lead to revised

educational programs. Also, current and predicted occupational opportunities should be disseminated to students by teachers and guidance counselors. Rural youth should be educated in order to be able to compete successfully in the labor market and not be stranded unproductively in farming or in any other part of the total economy.

The technological revolution in agriculture has presented a dilema to those responsible for designing educational curricula for farm youth. As a result of the declining number of farming opportunities, fewer students have been able to profit maximally from a curriculum designed primarily to train them for proficiency in farming. The numerous technological innovations in agriculture and the resulting increased complexities in the farm-management functions have dictated, however, an even greater need for providing a specific educational program for would-be farmers.

A federal-state-local cooperative program of vocational education in agriculture was originated with the passage of the Smith-Hughes Act in 1917 (40). This act, which was supplemented by subsequent acts, provided for cooperation among the federal, state and local governments in the promotion of vocational education of less than college grade in

the areas of agricultural, distributive, home economics, and trade and industrial education. The primary aim of vocational education in agriculture (42, p. 3) has been to train present and prospective farmers for proficiency in farming. The major objectives (42, p. 4) of vocational agriculture have been to develop effective abilities to:

1. Make a beginning and advance in farming.
2. Produce farm commodities efficiently.
3. Market farm products advantageously.
4. Conserve soil and other natural resources.
5. Manage a farm business effectively.
6. Maintain a favorable environment.
7. Participate in rural leadership activities.

Recent legislation (41) has modified the objectives and orientation of the vocational education program in agriculture. A more comprehensive program may now become available to farm-reared youth who seek employment in off-farm agricultural occupations.

Several basic questions regarding the educational needs of farm youth remain unanswered. What competencies are needed by those who are engaged in or are planning to enter farming and off-farm agricultural occupations? What type of programs and curricula will meet these needs? What factors are related to the occupational choices of farm youth? These and other questions are being investigated by educators as they grapple with the challenges of the changing agricultural

structure.

In commenting on the educational needs of farm youth and the importance of agricultural education, Hamlin (17, p. 58) has indicated that "the American people must recognize that agricultural education conducted through the public schools is of strategic importance in providing many of the essentials of life for a population that is growing rapidly." He continued by stressing that the importance of each farm increases as the number of farmers decreases. Furthermore, the American people "must not be blind to the education of the two workers we have in non-farm agricultural occupations for each worker engaged in farming."

Jakubauskas (24, p. 32) indicates in his discussion of Iowa's future that:

> Occupational employment shifts will mean a demand for workers with greater skills than in the past, and less of a market demand for unskilled laborer occupations. From 1960 to 1970, projections of past trends indicate that 2,000 professional and technical jobs will be added per year, 2,500 clerical (primarily female jobs), 400 sales, 400 skilled craftsmen and foremen, 2,300 semi-skilled operatives and 2,800 service (workers). Farmers and farm managers are expected to lose about 3,100 per year, while farm laborers and foremen will lose 2,000, and laborers in other industries will lose 600 per year....If the trends of the 1950's continue into the future...we will find that manufacturing employment will exceed agricultural employment by 1970, and by 1980 will supply twice as many jobs to the labor force in comparison with agricultural and other extractive and primary industries.

Predictions of this nature emphasize the need for investigation of the occupational patterns of Iowa farm boys and factors related to these patterns.

Several studies have been conducted in Iowa regarding the relationships of vocational agriculture to the occupational status of Iowa high school graduates. Other studies have investigated the environmental and educational factors related to the status of graduates of individual high schools throughout Iowa. This study, however, was designed to survey the factors related to the occupational status of Iowa high school graduates who were graduated from high school 9 to 13 years earlier.

This study was a part of a research project conducted jointly by the Department of Education and the Agricultural Experiment Station of the Iowa State University of Science and Technology and the Agricultural Education Section, Division of Vocational Education, State Department of Public Instruction of Iowa. Included in this project will be a number of studies relating to competencies in agriculture needed by Iowa male farm-reared high school graduates as prospective farmers and employees in off-farm agricultural occupations.

The basic purpose of this study was to investigate some

of the factors related to the occupations of farm males who were graduated from selected Iowa high schools during the period from 1950 through 1954. The specific objectives of the study were to determine:

1. The relations between the graduates' occupations and the geographical location of their high schools.
2. The relations between the graduates' occupations and selected characteristics of their home environments.
3. The relations between the graduates' occupations and their educational backgrounds.
4. Some measures of the occupational status of the graduates.

# REVIEW OF LITERATURE

The past and anticipated shifts in the agricultural labor force and the migration of farm youth have stimulated much research during the past decade. Numerous studies have been conducted regarding the occupations of former students of vocational agriculture on both area and community bases. Few studies, however, have been designed to describe the occupations and analyze the factors related to the occupations of farm-reared male graduates from high schools within an entire state after a time lapse of approximately a decade. The literature cited is believed to be of particular significance to this study.

On a regional basis, Wilson (48) conducted an occupational study of former vocational agriculture students from high schools in the wheat area of eastern Washington State. The students in this study had completed 3 or 4 years of vocational agriculture in high school and had been graduated during the six year period from 1950 through 1955.

Of the 141 respondents, 30.5 percent were farming and ranching, 19.2 percent were in agricultural-related occupations or were farm labors, 36.2 percent were in non-agricultural occupations, 7.8 percent were college students, and

10.6 percent were in the military services. Of the 43 respondents who were farmers or ranchers 93.1 percent lived on a farm while in high school.

Sixty-nine and one-tenth percent of the graduates who were farming evaluated vocational agriculture by indicating that it was of definite value in their work. Of those in agricultural-related occupations and those who were farm labor, 66.7 percent indicated a definite value from the vocational agriculture training in their occupations.

In 1955 Erickson (14) studied factors affecting the establishment in farming of former high school graduates. He investigated 182 graduates of North Dakota high schools, 1948 to 1954, who had received one or more years of vocational agriculture training and who were employed at the time of the study. He found a positive relationship between having been reared on farms of greater size than the average for the community and the entrance of the graduates into farming. As the size of the home farm increased, a corresponding increase was found in the number of young men who became engaged in farming.

An Iowa State University Agricultural Experiment Station Project was cooperatively planned and conducted by agricultural education graduate students and staff members at

Iowa State University in 1955 (33). The basic objective of this project was to determine the relationships of high school vocational agriculture to the establishment of graduates in farming.

The graduates for this project were selected from 20 high schools which had offered vocational agriculture during at least eleven of the twelve years from 1943 through 1954 and 20 high schools which had not offered vocational agriculture during the same period. The schools, which were selected from the north central cash grain and eastern livestock areas of Iowa, were paired on the basis of location, population of the town, religion and nationality of the people, high school enrollment, level of living index, and soil type. Data for the project were obtained from personal on-farm interviews.

Each graduate was classified as to whether he had been graduated during the 1943 to 1948 or the 1949 to 1954 period of years and whether his father was a landowner or a nonlandowner at the time of graduation. To quality for the study, the graduate was living on a farm at the time of graduation and was farming during the calendar year 1955. The final stratified random sample included eight graduates from each of the 40 schools or a total of 320 farmers.

The 160 former vocational agriculture graduates included

in this project were selected from the total of 1,545 graduates of the 20 vocational agriculture high schools. Of the 1,545 graduates, 718 or 46.5 percent were farming in 1958, 739 or 47.8 percent were in occupations other than farming, and the occupations of 88 or 5.7 percent of the graduates were unknown. Fifty-four and eight-tenths percent of the men who had been graduated between 1943 and 1948, and who had completed three years or more of vocational agriculture, were farming in 1958.

The 160 nonvocational agriculture graduates studied in this project were selected from the total of 1,328 graduates of 20 selected schools. Of the 1,328 graduates, 539 or 40.6 percent were farming in 1958, 744 or 56 percent were in occupations other than farming, and the occupations of 45 or 3.4 percent of the graduates were unknown. Forty-seven and two tenths percent of the men who had been graduated between 1943 and 1948 and who did not receive vocational agriculture training were farming in 1958.

As a part of this project, Nielsen (34) studied the relationship of high school vocational agriculture and size of home farm to the establishment of graduates in farming. He found higher mean scores on 28 of 32 measures of establishment in farming in favor of the vocational agriculture

graduates. Mean scores for 16 of the 32 measures of establishment in farming increased with increases in the size of the home farms of the graduates in his sample. Four of the analyses of variance conducted by Nielsen yielded significant F values favoring the graduates from larger home farms. These measures included total acres farmed by the graduates in 1955, crop acres farmed by the graduates in 1955, and crop and total gross products from farms of the graduates in 1955.

Henderson (18) studied the influence of high school vocational agriculture on the establishment of graduates in farming as a part of the Iowa State University study. He found that a significantly larger number of vocational agriculture graduates were operating large farms with more crop acres, had more acres of corn, more acres of oats, more acres of legumes for hay, more acres of rotation pasture, sold more hogs for slaughter, had higher averages of pigs weaned per litter, had more beef cows, sold more fat cattle, and had higher total gross products for their farm operations than had the nonvocational agriculture graduates.

Henderson also found when he compared vocational agriculture with nonvocational agriculture graduates, the vocational agriculture graduates were from larger home farms at the time of graduation and had had more years of farm

experience since graduation. He also found that a higher percentage of the vocational agriculture graduates were classified as farm operators. Conversely, a higher percentage of the nonvocational agriculture graduates were classified as nonoperators (working on farms with or without wages).

In 1956, Blake (5) studied the influence of high school vocational agriculture on the rate of establishment of graduates in farming as a part of the Iowa study. He found highly significant differences in the rate of establishment in farming in favor of the vocational agriculture graduates. Blake also found that 142 of the 160 vocational agriculture graduates were farm operators in 1955, as compared with 126 of the 160 nonvocational graduates. He also reported that the mean total gross product of the vocational graduates for 1955 exceeded that of the nonvocational agriculture graduates by $1506.75.

The relationship of high school vocational agriculture and military service to the establishment of graduates in farming was studied by Kasperbauer (27) as another part of the Iowa study. He concluded that vocational agriculture graduates had significantly higher mean total gross products and were better established in farming than were graduates of

nonvocational agriculture high school but that veteran status did not have a significant effect on mean total gross products.

Blake (6) investigated, as a part of the Iowa study, the relationship of high school training in vocational agriculture to subsequent establishment in farming and participation in organized groups. When compared on the basis of overall participation in all farm organizations, the high school graduates who had parents that were classified as owners had an advantage over the graduates whose parents were classified as nonowners. Likewise, the vocational agriculture graduates participated more in farm organizations than the nonvocational agriculture graduates.

As a part of his study, Blake sent mail questionnaires to the original 320 graduates as a follow-up study in 1963. He found that 177 of the 215 or 82.33 percent of the questionnaire respondents were farming in 1963. Approximately 18 percent of the respondents had left farming during the interval between 1955 and 1963.

As a continuation of the Iowa project, a series of studies were conducted regarding the relationships between: (1) the home and high school characteristics of farm-reared male high school graduates and their status in nonfarm

occupations; (2) high school vocational agriculture training and the status of graduates in nonfarm occupations related to farming and in occupations not related to farming; and (3) home and high school characteristics of farm-reared male high school seniors and their occupational choices.

In one of these studies, Wells (45) obtained a new sample of 320 graduates from the original 20 pairs of schools. The graduates were in occupations other than farming and were not college students or college graduates. Questionnaires were mailed to the graduates to determine the relationships which existed between certain home characteristics of farm-reared male high school graduates and their status in nonfarm occupations.

Wells found that the number of acres operated by the parents of the vocational agriculture and nonvocational agriculture groups were similar. The number of younger and older and the total number of brothers and the total number of brothers and sisters were similar for the two groups of graduates. Likewise, his analysis of the differences in occupational status (as measured by expressed degree of satisfaction, annual earned income and North-Hatt Scale of Occupational Prestige scale value) between the two groups yielded nonsignificant values. Wells did find, however, that

those graduates who had been graduated during the period from 1943 to 1948 enjoyed a higher occupational status.

No significant correlation was found to exist between any of the selected home characteristics of the graduates and their status in nonfarm occupations. The home characteristics included the number of acres operated by parents, age of father, number of older brothers, number of younger brothers, total number of brothers, total number of brothers and sisters and education of parents.

The purpose of a study by Bittner (3) was to determine the relationship between high school characteristics and the status of farm-reared male graduates in nonfarm occupations. Bittner employed the same sample as that used by Wells.

Bittner found that more than one-half of the graduates of both the vocational agriculture and nonvocational agriculture groups ranked in the lower one-half of their high school graduating classes. Those who were graduated in the upper ranks of their graduating classes were significantly better satisfied with their occupations than were those who were graduated in the lower ranks of their graduating classes.

Christensen (8) drew a new sample from the population used in the Iowa study in 1958. His objective was to study

the relationship of vocational agriculture to the occupational status of farm-reared graduates in nonfarm occupations related to farming. He found no significant differences between the graduates of the two types of high schools in the number of months in their occupations at the time of the investigation, the number of occupations held since high school graduation, the estimated value of a knowledge of farming in their present occupations and in the number of workers supervised by the graduates.

Christensen found nonsignificant relationships in comparing the home characteristics of the graduates of the two types of schools. The characteristics studied were age of fathers, education of fathers, education of mothers, number of brothers, total acres in home farms, and parental land-ownership status.

The three criteria employed by Christensen for the measurement of occupational status were expressed occupational satisfaction, prestige scale values and income from the occupation. Significant, positive correlations were found between income and prestige, income and satisfaction, and prestige and satisfaction. The graduates who had received college training scored significantly higher than the graduates who had not attended college on all three

criteria employed.

Christensen found that those graduates who had migrated had a higher occupational status than those who had not migrated. The degree of expressed occupational satisfaction was higher at the five percent level, whereas the differences in occupational income and prestige were significantly higher at the one percent level.

In 1958 Salmela (36) studied the relationships between certain home characteristics of farm reared high school senior boys and their occupational choices. He utilized the original 20 vocational agriculture schools used in the Iowa studies. Of the 20 nonvocational agriculture schools in the original study, 11 had included vocational agriculture in their curriculum since 1954. Eleven schools were substituted into the pairings to retain 20 schools of each type for the study of occupational choices. From these schools, all of the farm-reared senior boys completed a questionnaire. Each type of school was represented by 108 senior boys, 81 of whom were the sons of land owners and 27 of whom were the sons of nonland owners.

The procedure employed by Salmela to determine the relationship between home characteristics and occupational choices was as follows: (1) Categorize the seniors on the

basis of their first occupational choice into farming, professional occupations, and other occupations; (2) Assign an occupational prestige score for the first choices; (3) Assign an occupational prestige scale value to each of the three choices and establish a mean of the total for each senior.

Salmela found no significant differences in the occupational choices of vocational agriculture and nonvocational agriculture senior boys. Likewise, no difference was found between the occupational choices of sons of land owners when compared to sons of nonland owners. Forty-two and one-tenth percent of the senior boys chose farming as their first occupational choice, 32.9 percent chose professional occupations and 25 percent indicated interest in other occupations.

Home characteristics found to be related to occupational choices by at least one of the criteria were: size of family, education of father, education of parents, amount of discussion of plans with parents, participation in 4-H Club and Boy Scout activities and participation in church activities. Home environmental characteristics found not to be significantly related to occupational choices of the senior boys were: size of farm operated by the parents, age of the father, education of the mother, use of information about occupations from persons related to the home, and use

of information about occupations from sources not related to the home.

In 1959, Hensel (19) studied the relations between high school characteristics of farm-reared senior boys in Iowa and their occupational choices. He found that no significant differences existed in the occupational choices of the senior boys whose fathers were farm owners and those whose fathers were nonowners. He found a highly significant relationship between the occupational choices of the high school seniors and their percentile rankings in class. High ranking seniors tended to choose professional occupations. The farm-reared senior boys who chose professional occupations had participated in high school activities to a greater extent than had the boys who chose farming or other occupations. The seniors who ranked high scholastically tended to choose the occupations with higher prestige scores as measured by the North-Hatt Scale of Occupational Prestige. Also, Hensel found that the students gained most information about the occupations of their choice from their parents.

In 1964 Eggenberger (13) studied the present occupational status of West Texas high school graduates of 1953, 1954 and 1955 who had completed one or more years of vocational agriculture. He also investigated factors related to

the occupational choices of the graduates; evaluated the high school course areas and the vocational agriculture programs as related to the occupations; and determined possible changes that could be made in vocational agriculture in order to meet the needs of the graduates. His study included 846 graduates, or 70.4 percent of the graduates whose addresses were available.

He found that 28.4 percent of the graduates were farm operators, 15.7 percent were employed in farm-related occupations, 49.5 percent had entered nonagricultural occupations, and 6.4 percent were in the military services.

Factors related to the occupations of the graduates included the occupation of the father, acres of land operated by the father while the son was in high school, years of vocational agriculture completed by the high school graduate, the graduate's subsequent attendance at college, and his scholastic rank in his high school graduating class.

In a study of 1836 former male and female high school students from 12 north Iowa counties, Howe (23) found that 52 percent of the 932 males were still living in the same county where they had attended high school. He found that 41.1 percent were in approximately the same location, 21.9 percent were living from 1 to 100 miles of their home while in high

school, 10.7 percent were living 100 or more miles from their former home and 25.2 percent were living out of Iowa.

The percentages of males in each of the major census occupational classification groups were as follows: professional, 4.5 percent; farmers and farm managers, 12.7 percent; managers, 1.4 percent; clerical, 4.1 percent; sales, 2.2 percent; craftsmen, 8.6 percent; operatives, 9.4 percent; service, 0.9 percent; farm laborers, 1 percent; laborers other than farm and mine, 7.7 percent; unemployed, 0.6 percent; military service, 17.9 percent; and students, 29 percent.

A comprehensive occupational study was conducted by the vocational agriculture staff of the Virginia State Department of Education (43) in 1963. A total of 9792 former students who were graduated or who dropped out of high school in 1954, 1957, 1960, and 1963 and who had completed one or more years of vocational agriculture were surveyed. Of the population of former students, 18 percent were farming full-time, 11.16 percent were in agricultural-related occupations, 25.26 percent were in occupations related to mechanical training received, and 45.12 percent were in other nonagricultural occupations.

Of the total number of former students, 621 were farming

part-time. The study also revealed that entry into farming and related occupations was positively correlated with the number of semesters of vocational agriculture taken. Twenty-nine and nine-tenths percent of the students who had completed only one year of vocational agriculture entered farming and related occupations, whereas 44.9 percent of those completing four years of vocational agriculture were engaged in farming and related occupations. The study also indicated that a slightly lower percentage of the 1960 graduates and the drop-outs were employed in full-time farming as compared to the remainder of the population; a higher percentage of the 1960 graduates and drop-outs, however, were employed as part-time farmers and in farm-related occupations.

In 1962 Stenholm (38) conducted a study of the 1952, 1953 and 1954 male graduates in Jones County, Texas. Of the 148 respondents, 116 had completed one or more years of vocational agriculture in high school. Stenholm found that 27.7 percent of the graduates were still living in Jones County and that 15.5 percent were living outside the State of Texas.

He found that 45.3 percent of the graduates' fathers were farming while the graduates were in high school. Only 9.5 percent of the total number of graduates were farming,

and only 11.2 percent of the 116 graduates who completed one or more years of vocational agriculture were farming at the time of the study. Of the total number of graduates, 3.4 percent were in farm-related occupations.

Reid (35) in 1960, studied the occupational status of 159 of the 1945 to 1954 vocational agriculture graduates from the Moapa and Virgin Valley High Schools in Colorado. He found that 10.7 percent of the graduates were engaged in farming, 53.5 percent were in nonfarm occupations and the remaining 35 percent were in temporary occupations such as military service, college attendance, and serving on church missions.

Many studies have been confined to follow-up investigations of graduates of single community school districts. Kenestrick (28), in a 1936 investigation, studied 362 former all-day students of vocational agriculture in Ohio who left high school during the period from 1918 to 1934. He found in classifying the size of home farms that attainment of higher status in farming was associated with moderate size home farms rather than extremely large farms. His study was concerned with the extent of and the means by which these former students of vocational agriculture succeeded in establishing themselves in farming and at what rates they

advanced in farming status.

Hoopes (21), in 1937, studied a group of 100 former students of vocational agriculture from Muscatine, Iowa. In his study of factors affecting the occupational status of these graduates, he found that the percentage of sons in a family who entered farming decreased as the number of sons in the family increased. Seventy-four percent of the former students whose fathers were owner-operators were farming, whereas only 44.8 percent of the sons of tenant farmers had entered farming.

Hoopes found that 64 percent of the former students were farming, 10 percent were in farm related occupations, and 26 percent were in nonagricultural occupations. Eighty-five percent of the students who were not farming had come from home farms of 160 acres or less.

A study of farm-reared male graduates of the Newton, Iowa High School during the period from 1940 to 1955 was made by Newton (31). Of the 194 farm-reared graduates, 144 or 74.23 percent had enrolled in high school vocational agriculture. More than 38 percent of the graduates were farming, 17.39 percent were in farm-related occupations, and 44.57 percent were in occupations not related to farming.

Newton found that the number of acres farmed by the

parents was the only home-related characteristic showing a significant influence on the occupational choices of the graduates. Graduates from larger home farms chose farming as a vocation to a greater extent than graduates from smaller farms. He found nonsignificant differences when the graduate's employment in farm-related or nonfarm-related occupations were compared to: (a) the ownership status of the parents, (b) fathers being alive at time of graduation, (c) father's age at time of graduation, (d) number of brothers and sisters, and (e) father's education and mother's education.

As reported in several other studies, a comparison of the number of semesters of vocational agriculture completed by the graduates and their occupational choice of farming, farm related, or nonagricultural fields revealed significant differences.

Newton found that graduates of high ability, as measured by I.Q. and class rank, tended to choose nonagricultural occupations. Of the students ranking below the second decile in their graduation classes, 48.4 percent entered non-agricultural occupations. Correspondingly, 54.76 percent of the graduates who ranked above the eighth decile entered nonagricultural occupations. Of the graduates who ranked

below the second decile, 35.48 percent chose farming as an occupation, whereas 26.19 percent of those who had ranked above the eighth decile became farmers.

It was found that 57.73 percent of the graduates remained in the Newton community, 18.04 percent left Newton but remained in Iowa and 24.23 percent migrated from Iowa. A total of 82.36 percent of the graduates who ranked below the second decile in their high school graduating classes remained in the Newton community. Of those who ranked above the eighth decile, 40.91 percent remained in the Newton community.

A study of 392 vocational agriculture graduates from the Winterset High School in Iowa beginning with the class of 1930 and ending with the class of 1961 was made by Bishop (2). He found that more than 78 percent of the parents of the graduates were farm operators and that more than 29 percent of the graduates had attended college. Nearly 12 percent of the graduates had completed four or more years of college, and over 26 percent of those who had attended college majored in agriculture.

Bishop reported that 24.2 percent of the graduates were in professional or managerial occupations; 25.8 percent, in farming; 10.4 percent in clerical and sales occupations;

25.8 percent, in craftsman and operative occupations; 5.8 percent were in service occupations or were laborers other than farm and mine laborers; and 8 percent were in the military service.

More than 73 percent of the graduates were living within Iowa, and 32 percent of this group were in the upper one-half of their graduating class. Ninety-six percent of those who were farming lived in Iowa, and 32.1 percent were in the upper one-half of their graduating class. Of the graduates who became farmers, nearly 82 percent were living in the Winterset community, 14.4 percent lived elsewhere in Iowa, and 3.9 percent were living outside of Iowa.

Of the graduates who were in farm-related occupations, 42 percent were living in the same community where they had attended high school, 45.5 percent lived elsewhere in Iowa and 12.5 percent lived outside of Iowa. Only 19.9 percent of those graduates in nonagricultural occupations were living in the community where they had attended high school, whereas 33.9 percent were living elsewhere in Iowa and 46.2 percent lived outside of Iowa.

In an Iowa study of 459 farm operators in the Webster City area, Clover (9) found that 239 of these farmers operated less than 241 acres and 151 of the farmers rented

less than 161 acres. A total of 323 of the farmers operated some land as tenants. Clover found that as the age of the operator increased the amount of land rented decreased.

Clover estimated a total of 14 farm operators would leave farms in the Webster City area each year for the next 10 years. He predicted that 2.3 operators would die, 9.2 would retire, and 2.5 would take up other nonfarm employment. Because of the pattern of the farm consolidation, approximately six farms would be eliminated each year with the resulting need for eight replacement farmers each year. During the last ten year period, an average of 11.4 new operators entered farming each year in the Webster City district studied by Clover.

Clover concluded from his investigation that for at least the next ten years ample farming opportunities will be afforded farm boys in the Webster City community school district who desire to farm. He estimated that approximately 10 young men with vocational agriculture training would graduate each year in the district. If only 50 percent of the vocational agriculture graduates would want to farm, there would be a shortage of 3 replacements with vocational agriculture training each year.

In another Iowa study, Weed (44) surveyed a population

of 180 males who were 1948 to 1960 graduates from the Glidden-Ralston Community High School. Fifty-eight and two-tenths percent of the graduates were sons of farm operators and 44.8 percent were town-reared and had fathers engaged in occupations other than farming.

Over 37 percent of the graduates were engaged in farm or farm-related occupations, 42 percent were in occupations not related to farming and 20 percent were in the military service or college at the time of the study.

Weed found that 66 percent of the graduates ranked in the lower one-half of their graduating classes. Of the graduates remaining in the Glidden community, 18.2 percent were above the first quartile, whereas 37.3 percent were below the third quartile. More than 83 percent of the graduates in farming occupations came from the lower one-half of their graduating classes.

Dobervich (12), in his 1940 study of 157 former vocational agriculture students between the ages of 16 and 36, and established as farm operators in 82 counties in Iowa, reported that he was unable to find any relationship between the number of brothers and the young men's opportunities for becoming established in farming. He found that 16 percent of the 157 young farmers had worked on the home farm as

laborers before becoming established in farming. The average length of time spent as laborers by this group was two years.

In 1949 Houston (22) compared all of the farm boys who had been graduated during the 1940 through 1947 period of years from two high schools in Iowa that had offered vocational agriculture with those who had been graduated from two high schools which had not offered vocational agriculture. His study included 360 graduates. Houston studied the way that the graduates became established in farming, in related occupations, or in occupations not related to farming following their graduation from high school. He found that farm-reared graduates of high schools that had offered vocational agriculture entered farming at a higher status than farm-reared graduates of high schools that had not offered vocational agriculture.

Crawford (11) and others in 1954 compared vocational agriculture high school graduates with nonvocational agriculture high school graduates in regard to practices used on their farms. He found that the vocational agriculture graduates had higher mean scores on 13 of the 21 soil management practices that were used on the graduates' farms. In addition, the vocational agriculture graduates were operating a larger number of crop acres of farm land, had

attended college to a greater extent and had attended more adult and young farmer classes in agriculture than the nonvocational agriculture graduates.

An occupational investigation of 319 vocational agriculture high school graduates and 180 nonvocational agriculture high school graduates from 10 central Iowa high schools was conducted by Aldinger (1) in 1954. He found no significant differences in the farming status of the graduates in communities where vocational agriculture had been offered as compared to communities where this type of training had not been offered. His findings revealed that 9 percent of the vocational agriculture graduates were in agricultural related occupations, whereas only 3.3 percent of the nonvocational agriculture graduates were in agricultural related occupations. Twenty-seven percent of the vocational agriculture graduates compared to 35.5 percent of the nonvocational agriculture graduates were in occupations not related to farming.

Herman (20) in 1957 compared 106 graduates of a high school which had offered vocational agriculture with 105 graduates of a high school which had not offered such a program. Both high schools were located in southeastern Iowa. He reported that the vocational agriculture graduates

had received somewhat more guidance, more were farming, rented larger farms, attended an agricultural college in larger numbers, and in general, were slightly more satisfied with their present occupations.

The occupational status of farm-reared male graduates of the Osage, Iowa High School who had been enrolled in vocational agriculture were compared to that of farm-reared male graduates by Lauterbach (29) who had not received this type of training from two nearby high schools. He included in his study data concerning graduates during the period from 1935 to 1950. More vocational agriculture graduates upon graduation had entered some phase of farming or occupations related to farming than had the nonvocational agriculture graduates. As a result of his 1955 comparisons, Lauterbach found that slightly more from the control group (no vocational agriculture) were farming and were in occupations related to farming. The status in farming of the two groups of graduates was virtually the same.

In 1939 Evans (15) investigated the factors which had affected the establishment in farming of 100 former students of vocational agriculture at Hudson, Iowa. He found that: (a) the 49 former students who were not farming had achieved higher average grades scholastically than had the 51 who were

farming; (b) 48 percent decided upon their present occupation after leaving high school; (c) 92 percent of the former students who were farming had become established in farming with the assistance of parents or relatives; (d) the greater the number of sons in a family, the smaller was the percentage of those sons found in farming; (e) the former students who were not farming had come from homes with higher social ratings; and (f) the former students who were farming had come from homes with higher economic ratings.

Findings concerning a study of 415 junior and senior students of vocational agriculture enrolled in high schools in Minnesota and Wisconsin were reported by Bjoraker (4) in 1952. He found a significant association between size of home farm in acres and the boy's desire to remain in farming. He stated that it appeared that the nature of the responsibility of the boy on the larger home farm made the major contribution to his desire to remain in farming. Where the student had greater managerial responsibility and greater opportunity to do "a man's work," the level of desire to remain on the farm was higher.

Nicol (32), 1943, surveyed 138 men who became established as tenants and farm owners in central Illinois. All men studied had completed two or more years of high school

vocational agriculture. He found that sons of owners were more likely to become established as owners than sons whose fathers were nonowners. Nicol indicated that an increase in the number of brothers decreased the likelihood of a graduate becoming established in farming as an owner. He also reported that the number of brothers at home was slightly associated with the farming status reached.

Nelson (30) in 1951 studied certain factors which had influenced high school seniors in their choice of professional occupations. She investigated 156 boys and 119 girls from Ames and Des Moines high schools. Her findings indicated that there was a significant relationship between scholastic aptitude and choice of professional occupations, and that the factors of ability, opportunity for employment, ease of work, feeling of security, influence of certain individuals, and financial reward influenced to a great degree those who chose nonprofessional occupations.

Available research regarding factors that apparently influence the nature of the occupational decision making process was compiled by Burchinal (7). His findings based upon studies of occupational aspiration indicated that "the aspirations of youth point to upward occupational mobility... (and) many more youth desire higher prestige occupations than

are available."

He found that the occupational plans of rural youth are influenced by several factors. He grouped these influences into three general categories: (1) the social situation of the youth and his family, (2) reference groups of the youth, and (3) characteristics of the youth.

In the spring of 1959 Kaldor, Eldridge, Burchinal and Arthur (26) studied the long-range occupational plans of Iowa farm boys in their senior year of high school. Of the 870 boys included in their sample, 38 percent were planning to enter farming, 58 percent were intending to enter a variety of nonfarm occupations, and nearly one percent were expecting to combine farming with a nonfarm job. These investigators also found that in general, boys who were planning to farm:

1. Were more certain of their plans,
2. Formulated their career plans earlier,
3. Valued nonincome characteristics associated with farming,
4. Indicated a preference for working conditions and community characteristics associated with farming,
5. Owned more financial resources and were anticipating more parental assistance to finance entry into farming,

6. Had lower educational aspirations,
7. Had a slightly lower mean intelligence score and a moderately lower mean achievement score and a moderately lower grade-point average,
8. Participated less frequently in school activities, and
9. Were more optimistic about future relative income-earning opportunities than were boys who were planning nonfarm occupations.

Jakubauskas (24) reviewed a number of government reports and journal articles dealing with past and predicted changes in the labor force in Iowa and the nation. He found that for the nation as a whole, the last decade has seen a significant up-grading of the labor force, reflecting both technological and economic developments. For workers of both sexes in the labor force, the largest decline of employment has been in the proportion of workers in farm occupations, while the largest gain was experienced in the service and professional-technical occupations.

He found that a high school education was more commonly associated with higher average annual incomes than the accumulation of work experience without such high school training. Also, there was a high degree of correlation

between additional years of education beyond high school and lifetime earnings.

Jakubauskas predicted that job opportunities for Iowa's youth will continue to suffer absolute declines of employment opportunities in agriculture in comparison with an overall rise of 20 percent in employment opportunities in the United States in the 1960s. He indicated that by 1970 manufacturing employment will exceed agriculture employment and by 1980 "white-collar" jobs will comprise about one-half of the total jobs in the state. These assumptions are based on a continuation of the occupational trends of the 1950s.

In conclusion, Jakubauskas emphasized the emerging need for vocational education in Iowa.

> "What will be needed for the state and the nation in the years ahead will be an imaginative and broad skill-development program - as visionary as the establishment of land-grant colleges in the United States a century ago, but including a wider range of skills and educational programs than is currently found in colleges and universities."

The review of literature revealed a variety of findings and conclusions regarding the occupational status of high school graduates. Doubtlessly, many of the differences in the findings reflected changes which have come about in opportunities for farm and nonfarm employment. Research design and area differences also contributed to some of

the contradictory findings reported.

Most of the studies indicated that approximately 28 to 50 percent of the farm-reared high school graduates entered farming, 11 to 19 percent entered off-farm agricultural employment, and the remainder were employed elsewhere. Generally, over one-half of the graduates remained in their home communities, approximately 25 percent migrated out of their home state, and the balance remained outside their home community but within their home state.

Nearly all of the studies indicated that graduates whose fathers were owners of larger-than-average farms tended to enter and become established in farming at a higher rate and status. Most of the studies revealed that enrollment in vocational agriculture was a positive influence on the graduates' entry and establishment in farming.

Conflicting findings were reported regarding the influence of various home characteristics on the occupations of the graduates. Several of the studies indicated little or no relationship between the number of siblings in the family and the occupational status of the graduate. Others revealed, however, a negative relationship between the number of sons in a family and the percentage of these sons entering farming.

Most of the investigations reported that graduates who entered farming tended to rank in the lower one-half of their high school graduating classes, whereas those who entered nonagricultural occupations tended to rank in the upper one-half of their classes.

# METHOD OF PROCEDURE

## Design of Study and Data Collection

The primary objective of this study was to investigate factors related to the occupations of Iowa farm male high school graduates. Selected educational, environmental, occupational and ability data were gathered from 165 participating high schools in Iowa and from the 1950 to 1954 graduates of these high schools.

The study was designed under the supervision of C. E. Bundy and D. L. Blake who acted jointly as co-leaders for the Iowa Agricultural Experiment Station Project 1253 of which this study was a part. The schedule and questionnaire (Appendix B) were developed by the participating graduate students with assistance and consultation from Leroy Wolins, Wayne Fuller and Trevor Howe of Iowa State University. Mrs. Mary Clem and Mrs. Helen Ayres of the Iowa State University Computation Center assisted in coding, tabulating and analyzing the data. The participating graduate students included: E. J. Mabon, Alan Kahler, Wayne Wallace, James Gillespie, Robert Maxwell and the investigator, Roy Hickman.

The statistical treatment of the data in this study was confined to chi-square and correlation analyses. The statistical methods employed were in accord with Wert (46).

Delimitations

This study was limited to a global investigation of factors related to the occupations of former Iowa farm boys. It was designed to describe the occupations of former high school graduates and to analyze the relationships between these occupations and selected educational and environmental variables. It was not intended to be a study in depth of any particular occupational characteristic or factor related thereto. The purpose of this study was to investigate the occupations of the graduates in 1963, not to analyze the occupational decision-making process nor to predict the occupational choices of future farm youth.

Selection of high schools

The names of all Iowa high schools with vocational agriculture departments were obtained for the period from 1950 through 1954 from state directories issued annually by the state supervisor of agricultural education. Information concerning the number of years that vocational agriculture had been taught in these schools was obtained from the annual state reports also prepared by the state supervisor

of agricultural education and from the state directories.

The following criteria were established for selecting the high schools to be included in the study:

1. The high school must have offered an approved program of vocational agriculture during at least one of the following academic years: 1949-1950; 1950-1951; 1951-1952; 1952-1953; 1953-1954.
2. The members of at least one of the graduating classes during this period must have had an opportunity to enroll in a three- or four-year vocational agriculture program.

Employing these criteria, a total of 196 former Iowa high schools were selected for the study. Through the process of school-district reorganization from 1950 to 1962, seven of these schools were absorbed into new school districts, and several of the high schools assumed new names as a result of reorganization. Because of the possible confusion resulting from reorganization and the fact that the study pertained primarily to farm-reared graduates, all former high schools that had been absorbed into one of the 189 school districts, including those that had not offered vocational agriculture, were included in the study.

Selection of graduates

Information was requested from each of the 189 selected high schools regarding their male graduates during the period from 1950 through and including 1954. Schedules (Appendix B) hereinafter referred to as Form 1 Schedules, were mailed to the vocational agriculture department in December, 1962. An explanatory letter (Appendix A) also was sent to the superintendent of each school soliciting his cooperation. Data regarding the male graduates from those high schools no longer having a vocational agriculture department were obtained from the high schools' permanent records by graduate students participating in the project. In some cases, data were obtained from high schools that did not voluntarily furnish the information as requested.

The following criteria were established in selecting the male graduates for this project. These criteria were printed in the instructions (Appendix B) which accompanied the schedules to each vocational agriculture instructor:

1. Each graduate must have been graduated with the regular spring semester graduating class during the five-year period from 1950 through and including 1954.
2. Each graduate must have received an official signed

diploma certifying graduation from high school.

3. Each graduate must have been graduated from any one of the schools reorganized into the district at the time of the collection of the data.
4. Each graduate must have met at least one of the following criteria:
   (a) His father's largest single source of income must have been derived from farming at the time he was graduated from high school or during most of the time he was in high school,
   (b) He was enrolled in vocational agriculture for six or more semesters in high school.

Collection of data

Packets of Form 1 schedules were sent to the vocational agriculture instructors in those high schools that had vocational agriculture departments in December, 1962. Each packet contained:

1. Double the estimated number of Form 1 schedules needed by the school. The second copy was included to enable the instructor to conduct local studies.
2. A two-page set of instructions regarding the criteria to be used in selecting the graduates and suggested ways and means of locating and reporting

the requested data.

3. A letter outlining the objectives of the project and soliciting the cooperation of the instructors.
4. A self-addressed and postage-paid envelope.

Upon receipt of the completed Form 1 schedules from the vocational agriculture instructors, each graduate from each high school was assigned an individual three-digit serial number. Each schedule was reviewed for completeness and accuracy. Those schedules with mailing addresses were then used to prepare the Form 2 Questionnaire (Appendix B) to be sent to each graduate.

Because of difficulties encountered in obtaining the current mailing addresses of the graduates, permission was obtained from the Iowa State Director of the Selective Service system to seek addresses from county selective service board secretaries. In addition, the records at the Iowa headquarters were made available for obtaining the location of the local board with which some of the graduates were registered.

If addresses could not be located by contacting local community resource personnel, telephone directories, university alumni offices, etc., the names were submitted to the county selective service system board secretaries. Addresses

were declared to be unavailable if the selective service system reported that the graduates either were not registered in Iowa or were in the military service. Likewise, a mailing address was declared unavailable if the post office returned the Form 2 Questionnaire which had been mailed under an address supplied by the selective service system.

The Form 1 schedules were filed in accordance with the serial number assigned to the school. Records were made regarding those graduates who were deceased, imprisoned, totally incapacitated, and not regular graduates of a participating high school (i.e., mid-year graduates, unsigned diplomas, etc.).

Efforts were made to obtain a high degree of cooperation from the 189 high schools. Follow-up letters (Appendix A) were mailed in March and May of 1963 to those schools that had not submitted the requested information. Encouragement to participate was provided by the state supervisor of agricultural education, and personal contacts were made at the district and state FFA contests by the graduate students involved in the project.

By July of 1963, data either had been supplied by the vocational agriculture instructor or secured by the participating graduate students from 165 or 87.3 percent of the 189

selected Iowa high schools. The locations of the 189 selected high schools and the 165 participating high schools are shown in Figure 1. The post office addresses of the 165 participating high schools and the number of graduates from whom Form 2 Questionnaires could be expected are listed in Tables 1 through 5 by economic areas in Iowa.

Form 2 Questionnaires were mailed to the graduates during the period from March through June of 1963. Each questionnaire contained the graduate's serial number, name and address. The questionnaires were mailed in window envelopes via first-class mail to expedite handling by the post office, improve the response rate from the graduates, and to indicate, if returned by the post office, those graduates for whom incorrect or insufficient addresses had been obtained.

Records were maintained by school of the responses. A follow-up letter (Appendix A) was sent to each nonrespondent during the month of May. In July, 1963, a second questionnaire and a self-addressed and postage-guaranteed envelope were sent to the remaining nonrespondents. The final follow-up questionnaire also contained an additional request (Appendix A) for cooperation by the graduate.

In September, 1963, the Form 2 Questionnaires were checked for completeness. The names and serial numbers on

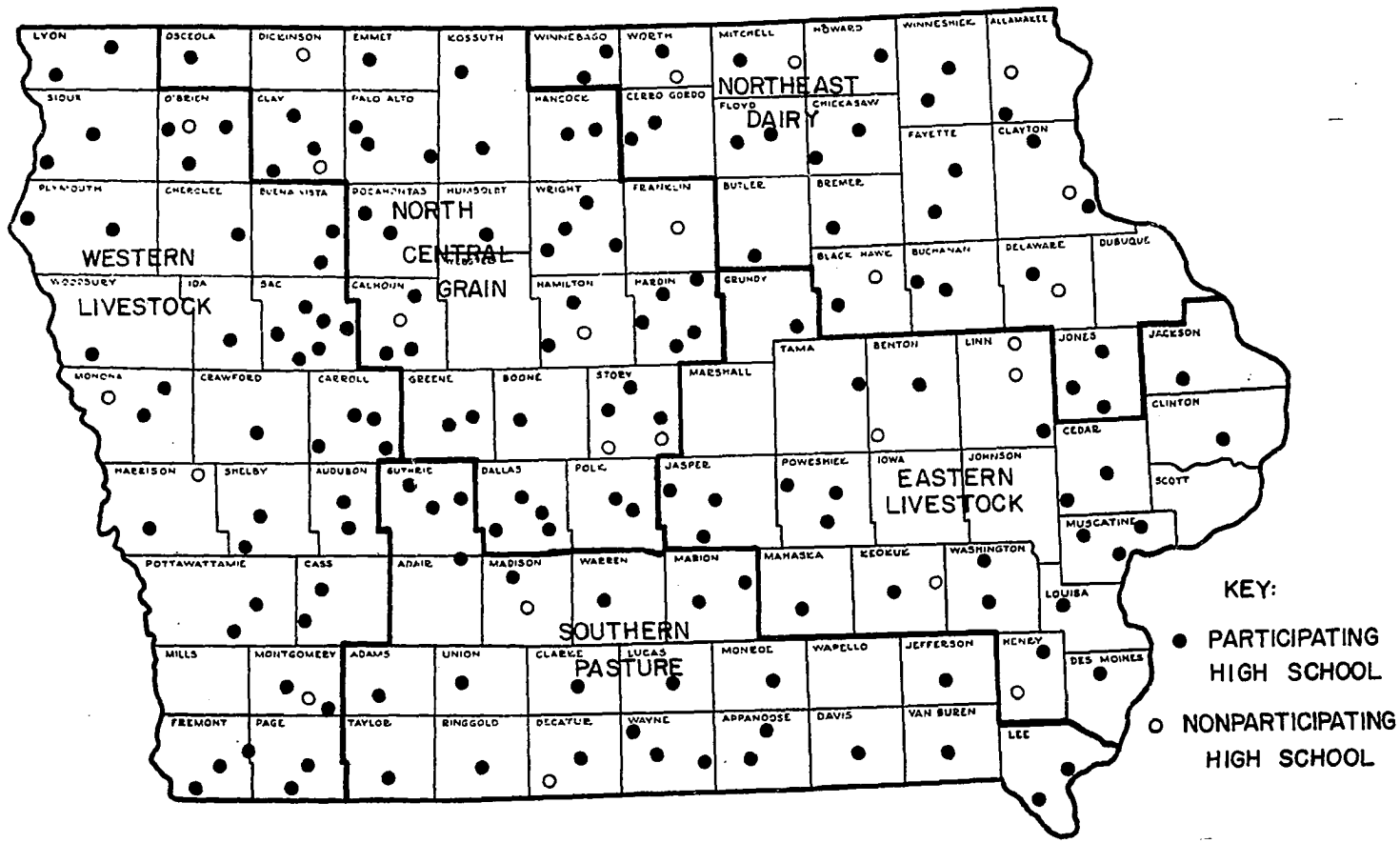


FIGURE I. IOWA ECONOMIC AREAS AND LOCATION OF HIGH SCHOOLS

Table 1. Post office addresses of 31 participating Iowa high schools and number of graduates from whom questionnaire responses could be expected, Northeast Dairy Area, Iowa

| Post office address of high school | Graduates N | Post office address of high school | Graduates N |
|---|---|---|---|
| Anamosa | 67 | Maynard | 52 |
| Buffalo Center | 68 | Monona | 74 |
| Calmar | 36 | Monticello | 48 |
| Charles City | 62 | Nashua | 52 |
| Clear Lake | 44 | New Hampton | 68 |
| Cresco | 66 | Northwood | 37 |
| Decorah | 93 | Olin | 38 |
| Elkader | 55 | Osage | 100 |
| Forest City | 75 | Parkersberg | 48 |
| Guttenberg | 20 | Postville | 59 |
| Hudson | 26 | Rockford | 76 |
| Independence | 38 | St. Ansgar | 50 |
| Jesup | 41 | Strawberry Point | 120 |
| Lake Mills | 67 | Ventura | 31 |
| Manchester | 58 | Waverly | 59 |
| | | West Union | 64 |
| | | N = | 1792 |
| | | Mean = | 57.81 |

Table 2. Post office addresses of 24 participating Iowa high schools and number of graduates from whom questionnaire responses could be expected, Eastern Livestock Area, Iowa

| Post office address of high school | Graduates N | Post office address of high school | Graduates N |
|---|---|---|---|
| Brooklyn | 44 | Muscatine | 93 |
| Columbus Junction | 35 | Newton | 102 |
| DeWitt | 60 | Oskaloosa | 59 |
| Dysart | 42 | Reinbeck | 47 |
| Grinnell | 45 | Sigourney | 29 |
| Kalona | 41 | Tipton | 56 |
| Lisbon | 21 | Vinton | 44 |
| Maquoketa | 48 | Washington | 90 |
| Mediapolis | 25 | West Branch | 42 |
| Mingo | 28 | West Liberty | 32 |
| Monroe | 47 | Wilton Junction | 32 |
| Montezuma | 62 | Winfield | 58 |
| | | | N = 1182 |
| | | | Mean = 49.25 |

Table 3. Post office addresses of 26 participating Iowa high schools and number of graduates from whom questionnaire responses could be expected, Southern Pasture Area, Iowa

| Post office address of high school | Graduates N | Post office address of high school | Graduates N |
|---|---|---|---|
| Albia | 61 | Guthrie Center | 54 |
| Argyle | 52 | Humeston | 42 |
| Bayard | 45 | Indianola | 63 |
| Bedford | 46 | Keosauqua | 31 |
| Bloomfield | 180 | Knoxville | 50 |
| Centerville | 56 | Leon | 50 |
| Chariton | 96 | Moravia | 62 |
| Corning | 78 | Mount Ayr | 66 |
| Corydon | 65 | Osceola | 70 |
| Creston | 42 | Panora | 28 |
| Earlham | 49 | Pella | 52 |
| Fairfield | 117 | Seymour | 51 |
| Fort Madison | 37 | Stuart | 48 |
| | | | N = 1586 |
| | | | Mean = 61.00 |

Table 4. Post office addresses of 43 participating Iowa high schools and number of graduates from whom questionnaire responses could be expected, Western Livestock Area, Iowa

| Post office address of high school | Graduates N | Post office address of high school | Graduates N |
|---|---|---|---|
| Akron | 46 | Inwood | 82 |
| Albert City | 21 | Lake View | 27 |
| Atlantic | 55 | LeMars | 75 |
| Audubon | 97 | Lytton | 36 |
| Aurelia | 50 | Manning | 49 |
| Carroll | 52 | Mapleton | 46 |
| Carson | 18 | Missouri Valley | 45 |
| Castana | 39 | Newell | 39 |
| Clarinda | 71 | Oakland | 45 |
| College Springs | 77 | Odebolt | 31 |
| Coon Rapids | 35 | Paullina | 42 |
| Denison | 66 | Red Oak | 35 |
| Early | 22 | Rock Rapids | 32 |
| Exira | 53 | Sac City | 60 |
| Farragut | 48 | Shelby | 27 |
| Glidden | 39 | Sheldon | 73 |
| Griswold | 77 | Shenandoah | 40 |
| Hamburg | 21 | Sioux Center | 40 |
| Harlan | 34 | Sloan | 56 |
| Hartley | 63 | Villisca | 45 |
| Hawarden | 40 | Wall Lake | 33 |
| Ida Grove | 33 | | |
| | | | N = 2015 |
| | | | Mean = 46.86 |

Table 5. Post office addresses of 41 participating Iowa high schools and number of graduates from whom questionnaire responses could be expected, North Central Grain Area, Iowa

| Post office address of high school | Graduates N | Post office address of high school | Graduates N |
|---|---|---|---|
| Ackley | 52 | Lake City | 66 |
| Algona | 52 | Laurens | 44 |
| Ankeny | 27 | Lohrville | 48 |
| Ayrshire | 40 | Manson | 54 |
| Belmond | 39 | Minburn | 24 |
| Bondurant | 30 | New Providence | 31 |
| Britt | 37 | Ogden | 51 |
| Clarion | 38 | Peterson | 22 |
| Colo | 24 | Pocahontas | 45 |
| Dallas Center | 35 | Radcliffe | 60 |
| Dows | 32 | Redfield | 48 |
| Eagle Grove | 35 | Ruthven | 18 |
| Eldora | 31 | Sibley | 44 |
| Estherville | 44 | Spencer | 63 |
| Garner | 37 | Story City | 37 |
| Gilbert | 28 | Stratford | 30 |
| Gillett Grove | 32 | Swea City | 40 |
| Grand Junction | 58 | Waukee | 27 |
| Humboldt | 52 | Webster City | 72 |
| Iowa Falls | 64 | West Bend | 39 |
| Jefferson | 56 | | |
| | | | N = 1706 |
| | | | Mean = 41.61 |

the returned questionnaires were compared to the Form 1 schedules to insure identity. Respondents were removed from the files if the information indicated that they did not clearly meet the established criteria for inclusion in the population. The writer found, for example, that 291 of the respondents did not qualify for the study because their fathers had not been farmers on the day of their graduation from high school or during most of the time they were in high school or they had not been enrolled in at least six semesters of high school vocational agriculture.

A description of the population of graduates is contained in Table 6.

Processing the data

The data obtained from the Form 1 schedules were coded, recorded on 80-column code sheets and transferred to International Business Machine (IBM) cards. The coding and transferal were performed by members of the Iowa State University Statistics Survey Service to insure accuracy and conformity.

Each Form 2 questionnaire was edited and coded by members of the Survey Service of the Statistical Laboratory and the participating graduate students. The information was transferred directly to IBM cards.

Table 6. Number and response rate of population of high school graduates

| Classification | | Number | Percent |
|---|---|---|---|
| Total number of graduates reported | | 8829 | |
| Of the total number: | | | |
| Addresses declared unavailable | 419 | | |
| Deceased graduates | 104 | | |
| Incapacitated graduates | 8 | | |
| Not regular 1950-1954 graduates | 17 | | |
| Total unavailable graduates | | 548 | |
| Total number of graduates from whom Form 2 questionnaires could be expected | | 8281 | |
| Total number of Form 2 questionnaires returned | | 6013 | |
| Response rate (6013 of 8281) | | | 72.61 |
| Graduates who did not meet criteria for inclusion in project | | 291 | |
| Final total number of graduates in project | | 7990 | |
| Final number of respondents in project | | 5722 | |
| Final return rate (5722 of 7990) | | | 71.61 |

The data from each Form 1 schedule were key-punched and verified on one IBM card. The data from each corresponding Form 2 questionnaire were key-punched and verified on two additional IBM cards. The three IBM cards for each respondent were matched by serial numbers to insure accuracy and completeness. All key-punching and verifying was performed by trained operators in the Iowa State University Computation Center.

Frequency counts for the analyses contained in this study were performed on the IBM card-sorter, 402 and 1401 machines. Coefficients of correlation were computed by the IBM 7074. One hour of "unsponsored research" time on the 1401 was provided by the Iowa State University Computation Center. All other computational costs were paid with Iowa Agricultural Experiment Station funds.

Post stratification of population

Initial tabulations of the data received from the questionnaires revealed that the response rate apparently was biased due to differences in the size of the graduates' high school graduating classes and their quartile ranks in their graduating classes. Table 7 indicates the response rate by size of class and quartile rank.

In an effort to reduce these biases, the population of

Table 7. Response rate by quartile scholastic rank in graduating class

| | Quartile Rank | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Number in graduating class | Bottom 1/4th | | | Third 1/4th | | | Second | |
| | Total | Response | | Total | Response | | Total | Re |
| | N | N | % | N | N | % | N | N |
| 1 - 49 | 1400 | 873 | 62.15 | 1042 | 767 | 73.61 | 868 | 6 |
| 50 and over | 1028 | 604 | 58.75 | 896 | 629 | 70.20 | 764 | 5 |
| No information | 28 | 20 | 71.43 | 29 | 20 | 68.97 | 31 | |
| Total | 2456 | 1497 | | 1967 | 1416 | | 1663 | 12 |
| Percent response by quartile rank | 60.95 percent | | | 71.99 percent | | | 77.27 | |

[a]Total includes those graduates for whom no quar

rank in graduating class and size of high school

| Second 1/4th | | | Top 1/4th | | | Total[a] | | |
|---|---|---|---|---|---|---|---|---|
| Total N | Response N | % | Total N | Response N | % | N | Response | % |
| 868 | 676 | 77.88 | 641 | 559 | 87.21 | 4378 | 3176 | 72.54 |
| 764 | 584 | 76.44 | 447 | 391 | 87.47 | 3237 | 2280 | 70.44 |
| 31 | 25 | 80.65 | 22 | 16 | 72.73 | 375 | 266 | 70.93 |
| 1663 | 1285 | | 1110 | 966 | | 7990 | 5722 | |
| 77.27 percent | | | 87.03 percent | | | 71.61 percent | | |

no quartile rank data were available.

graduates was reapportioned by post stratification in accordance with Cochran (10, p. 135). The reapportionment was completed as follows:

1. Because quartile rank data were not available for 866 of the 5722 respondents, arbitrary quartile rankings were established from available final scholastic averages. These assigned quartile rankings were based upon the frequency distribution of the final scholastic averages and quartile rankings for the total population. Graduates with "C-" or lower averages were assigned to the bottom quarter; "C" average graduates were assigned to the third quarter; graduates with "C+" or "B-" averages were assigned to the second quarter; and graduates with "B" or higher final scholastic averages were assigned to the top quarter.
2. The graduates were divided into nine strata as follows"

| Stratum | Class size | Quartile rank |
|---|---|---|
| 1 | 1 to 49 | bottom |
| 2 | 50 and over | bottom |
| 3 | 1 to 49 | third |
| 4 | 50 and over | third |

| Stratum | Class size | Quartile rank |
|---|---|---|
| 5 | 1 to 49 | second |
| 6 | 50 and over | second |
| 7 | 1 to 49 | top |
| 8 | 50 and over | top |
| 9 | no information | no information |

The strata identification numbers were gang punched into the IBM cards and a frequency distribution was prepared as shown in Table 8.

The formula for determining the final reapportioned population size (N) of each stratum in Table 8 was as follows:

$$\frac{\text{(Total population of graduates in stratum) (0.775)}}{\text{Total number of responses from graduates in that stratum}} \times \text{Number of respondents from that stratum who qualified for the study} = N$$

An arbitrary return rate of 77.5 percent was established for each stratum. Example for stratum 1:

$$\frac{(1509)\ (0.775)}{957} \times (915) = 1118$$

To obtain this reapportioned population, 203 of the 915 cases were randomly duplicated.

3. The reapportionment was completed by randomly duplicating or removing individuals from the stratum's total number of respondents. The final reapportioned population consisted of a new total of

Table 8. Reapportionment of population in accordance with differential response rates

| Stratum number | Total population N | Total responses[a] N | Response rate % | Number of graduates included in study N | Reapportionment | | Final re-apportioned population N |
|---|---|---|---|---|---|---|---|
| | | | | | Duplicated N | Removed N | |
| 1 | 1509 | 957 | 63.42 | 915 | 203 | | 1118 |
| 2 | 1061 | 631 | 59.47 | 604 | 183 | | 787 |
| 3 | 1176 | 868 | 73.81 | 818 | 41 | | 859 |
| 4 | 931 | 664 | 71.32 | 640 | 56 | | 696 |
| 5 | 975 | 769 | 78.87 | 736 | | 13 | 723 |
| 6 | 801 | 621 | 77.53 | 588 | | | 588 |
| 7 | 712 | 628 | 88.20 | 600 | | 73 | 527 |
| 8 | 469 | 413 | 88.06 | 399 | | 48 | 351 |
| 9 | 647 | 462 | 71.41 | 422 | 36 | | 458 |
| Total | 8281 | 6013 | 72.61 | 5722 | 519 | 134 | 6107 |

[a]All respondents were included for determining the total response rate for each stratum.

6107 respondents which were utilized for the analyses.

Some of the absolute and percentage changes in the make-up of the reapportioned population are portrayed in Table 9. These changes illustrate alterations in the population which tended to reduce the bias resulting from the skewed response rates.

Assumptions

The primary assumptions made by the investigator were as follows:

1. A representative sample of all 1950-1954 farm-reared Iowa male high school graduates could be secured from the graduates of the 189 Iowa high schools selected for this study.
2. Satisfactory information on the graduates could be obtained from the high school records.
3. The inclusion of nonfarm-reared graduates who had enrolled in six or more semesters of high school vocational agriculture would not distort the findings of this study.
4. The data obtained from the Form 1 schedules and Form 2 questionnaires were sufficiently accurate and adequate for the objectives of the study.

Table 9. Changes in population characteristics resulting from reapportionment of population

| Characteristic | Original population | | Reapportioned population | | Change in percentage |
|---|---|---|---|---|---|
| | N | % | N | % | % |
| Semesters of vocational agriculture: | | | | | |
| Less than 6 | 1921 | 33.57 | 1991 | 32.60 | -0.97 |
| 6 to 8 | 3801 | 66.43 | 4116 | 67.40 | +0.97 |
| Present location of graduates | | | | | |
| Same or contiguous county as compared to location of high school | 3188 | 55.71 | 3468 | 56.79 | +1.08 |
| Other than same or contiguous county | 2534 | 44.29 | 2639 | 43.21 | -1.08 |
| Agricultural classification of graduates' occupations | | | | | |
| Farming or farm laborer | 1741 | 30.43 | 1883 | 30.83 | +0.40 |
| Off-farm agricultural occupation | 759 | 13.26 | 794 | 13.01 | -0.25 |
| Nonagricultural | 3213 | 56.15 | 3419 | 55.98 | -0.17 |
| No information | 9 | 0.16 | 11 | 0.18 | +0.02 |

Table 9 (Continued)

| Characteristic | Original population | | Reapportioned population | | Change in percentage |
|---|---|---|---|---|---|
| | N | % | N | % | % |
| Census classification of graduates' occupations | | | | | |
| Professional, technical | 1104 | 19.29 | 1093 | 17.90 | -1.39 |
| Farmers and farm managers | 1643 | 28.71 | 1768 | 28.95 | +0.24 |
| Managers, officials and proprietors (except farm) | 486 | 8.49 | 517 | 8.47 | -0.02 |
| Clerical | 344 | 6.01 | 368 | 6.03 | +0.02 |
| Sales | 315 | 5.51 | 334 | 5.47 | -0.04 |
| Craftsmen | 802 | 14.02 | 877 | 14.36 | +0.34 |
| Operatives | 523 | 9.14 | 587 | 9.61 | +0.47 |
| Service | 85 | 1.49 | 96 | 1.57 | +0.08 |
| Farm laborers | 98 | 1.71 | 115 | 1.88 | +0.17 |
| Laborers, except farm & mine | 189 | 3.30 | 211 | 3.45 | +0.15 |
| No information | 133 | 2.33 | 141 | 2.31 | -0.02 |

5. The selection of the time period from 1950 to 1954 would allow the graduates to attend college, serve in the military service, and enter one or more occupations following their graduation from high school.

# FINDINGS

## Description of Occupations

The reapportioned population was composed of 6107 Iowa male high school graduates who were engaged in a wide variety of occupations. This study, however, was limited to an investigation of the primary occupation of each graduate (i.e., the occupation from which he received the highest proportion of his occupational income). The investigator classified these primary occupations in accordance with the U. S. Bureau of the Census (39) definitions. In addition, an agricultural classification system was derived from the census classification definitions and from the coding system developed to describe off-farm agricultural occupations.

Off-farm agricultural occupations were defined broadly as those occupations which required a basic knowledge of agriculture. Included were those occupations that pertained directly to the production, processing, distribution and/or marketing of farm commodities and also those occupations that provided services required primarily by farm operators.

The occupations of the graduates also were described in terms of the migration of the graduates from their home communities and income received. The following paragraphs

contain descriptive data regarding the occupations of the graduates.

Agricultural classification

A frequency distribution of the occupations of the graduates is presented in Table 10. The agricultural classification, which divided the population into four groups, revealed that 29.63 percent of the graduates were engaged in farming or were employed as farm managers, 1.93 percent were employed as farm laborers, 13.31 percent were in off-farm agricultural occupations, and 55.13 percent were engaged in nonagricultural occupations. Excluded from this distribution were the graduates who were students, unemployed, incapacitated and also those from whom no occupational data were available.

An examination of Table 10 indicates that nearly one-fifth (18.32 percent) of the graduates were engaged in the professional and technical census classification areas. Twenty-nine and sixty-three hundredths percent were classified as farmers and farm managers. The third largest group of graduates classified according to the census definition was composed of 877 (14.70 percent) graduates employed as craftsmen.

The migration of the graduates classified according to

Table 10. Agricultural classification by census classification of occupations

| Census classification | Agricultural classification: Farmers and farm managers N | % | Farm laborers N | % | Off-farm agricultural N | % | Non-agricultural N | % | Total N | % |
|---|---|---|---|---|---|---|---|---|---|---|
| Professional and technical | 0 | 0.00 | 0 | 0.00 | 163 | 20.53 | 930 | 28.28 | 1093 | 18.32 |
| Farmers and farm managers | 1768 | 100.00 | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 1768 | 29.63 |
| Managers and proprietors | 0 | 0.00 | 0 | 0.00 | 146 | 18.39 | 371 | 11.28 | 517 | 8.66 |
| Clerical | 0 | 0.00 | 0 | 0.00 | 46 | 5.79 | 322 | 9.79 | 368 | 6.17 |
| Sales | 0 | 0.00 | 0 | 0.00 | 125 | 15.74 | 209 | 6.35 | 334 | 5.60 |
| Craftsmen | 0 | 0.00 | 0 | 0.00 | 65 | 8.19 | 812 | 24.69 | 877 | 14.70 |
| Operatives | 0 | 0.00 | 0 | 0.00 | 150 | 18.89 | 437 | 13.29 | 587 | 9.84 |
| Service | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 | 96 | 2.92 | 96 | 1.61 |
| Farm laborers | 0 | 0.00 | 115 | 100.00 | 0 | 0.00 | 0 | 0.00 | 115 | 1.93 |
| Laborers (except farm and mine) | 0 | 0.00 | 0 | 0.00 | 99 | 12.47 | 112 | 3.40 | 211 | 3.54 |
| Total | 1768 | 100.00 | 115 | 100.00 | 794 | 100.00 | 3289 | 100.00 | 5966[a] | 100.00 |

[a]Information not available or inappropriate on 141 graduates.

the agricultural classification is indicated in Table 11. Migration was determined by comparing the graduate's address with the address of his high school. Chi-square analysis of the frequency distribution revealed highly significant differences among the graduates. A higher proportion of the graduates who were engaged in farming or who were employed as farm managers or farm laborers had remained in their home county or in a contiguous county. In contrast, fewer of the graduates engaged in nonagricultural occupations remained in their home communities. Of the group of farmers, farm managers and farm laborers, 96.27 percent had remained in Iowa, whereas 82.24 percent of those engaged in off-farm agricultural occupations and 58.70 percent of those engaged in nonagricultural occupations had remained in Iowa.

The primary occupational income of the graduates grouped according to the agricultural classification of their occupations appears in Table 12. These data indicate that except for the farm laborers, the highest percentage of the graduates in each classification were receiving occupational incomes of between $3001 and $6000. It is of interest to note that 22.70 percent of the farmers and farm managers were receiving incomes of $3000 and less whereas 5.17 percent of those engaged in off-farm agricultural occupations and 6.34

Table 11. Agricultural classification of occupations by migration of graduates[a]

| Migration | Agricultural classification: Farmers, farm managers and farm laborers | | Off-farm agricultural | | Nonagricultural | | Total | |
|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % |
| Same or contiguous county | 1767 | 93.84 | 461 | 58.06 | 1233 | 36.06 | 3461 | 56.78 |
| Same economic area | 17 | 0.90 | 54 | 6.80 | 203 | 5.94 | 274 | 4.49 |
| Within Iowa | 27 | 1.43 | 138 | 17.38 | 571 | 16.70 | 736 | 12.07 |
| Contiguous state | 58 | 3.08 | 77 | 9.70 | 511 | 14.95 | 646 | 10.60 |
| Outside contiguous state | 14 | 0.75 | 64 | 8.06 | 901 | 26.35 | 979 | 16.06 |
| Total | 1883 | 100.00 | 794 | 100.00 | 3419 | 100.00 | 6096[b] | 100.00 |

[a]Chi-square value = 1742.571. Table value at one percent level with eight degrees of freedom is 20.090. Significant at one percent level.

[b]Information not available on 11 graduates.

Table 12. Agricultural classification of occupations by primary occupational income

| Income | Agricultural classification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Farmers and farm managers | | Farm laborers | | Off-farm agricultural | | Nonagricultural | | Total | |
| | N | % | N | % | N | % | N | % | N | % |
| $3000 or less | 365 | 22.70 | 82 | 73.22 | 40 | 5.17 | 209 | 6.34 | 696 | 12.01 |
| $3001 to $6000 | 730 | 45.40 | 28 | 25.00 | 423 | 54.65 | 1692 | 51.27 | 2873 | 49.59 |
| $6001 to $9000 | 232 | 14.43 | 1 | 0.89 | 235 | 30.36 | 1127 | 34.15 | 1595 | 27.53 |
| $9001 and over | 281 | 17.47 | 1 | 0.89 | 76 | 9.82 | 272 | 8.24 | 630 | 10.87 |
| Total | 1608 | 100.00 | 112 | 100.00 | 774 | 100.00 | 3300 | 100.00 | 5794[a] | 100.00 |

[a]Information not available or inappropriate on 313 graduates.

percent of those engaged in nonagricultural occupations were receiving incomes within this interval. At the upper level of the income continuum, 17.47 percent of the farmers and farm managers were receiving occupational incomes of $9001 and over, whereas 9.82 percent of those engaged in off-farm agricultural occupations and 8.24 percent of those in non-agricultural occupations were receiving incomes within this bracket. These data reveal that a wider dispersion of level of income existed among those engaged in farming and farm management as compared to those in other occupational classifications.

The information in Table 13 reveals the need expressed by the graduates for a knowledge of agriculture in their occupations. Of the 5919 graduates responding to this item, 32.20 percent indicated that a knowledge of agriculture was not needed in their occupations, whereas 33.77 percent responded that a knowledge of agriculture was "very much" needed. As was expected, a high proportion of the farmers and farm managers indicated that a knowledge of agriculture was "very much" needed in their occupations. Although 56.48 percent of those engaged in occupations classified as non-agricultural expressed no need for a knowledge of agriculture, it is of interest to note that nearly one-fourth

Table 13. Agricultural classification of occupations by expressed need for knowledge of agriculture in occupations

| Need | Agricultural classification: Farmers and farm managers N | % | Farm laborers N | % | Off-farm agricultural N | % | Nonagricultural N | % | Total N | % |
|---|---|---|---|---|---|---|---|---|---|---|
| None (1) | 7 | 0.40 | 6 | 5.22 | 53 | 6.70 | 1840 | 56.48 | 1906 | 32.20 |
| Little (2) | 9 | 0.51 | 0 | 0.00 | 41 | 5.19 | 626 | 19.21 | 676 | 11.42 |
| Some (3) | 78 | 4.44 | 10 | 8.70 | 164 | 20.73 | 581 | 17.83 | 833 | 14.08 |
| Much (4) | 177 | 10.09 | 19 | 16.52 | 176 | 22.25 | 133 | 4.08 | 505 | 8.53 |
| Very much (5) | 1484 | 84.56 | 80 | 69.56 | 357 | 45.13 | 78 | 2.40 | 1999 | 33.77 |
| Total | 1755 | 100.00 | 115 | 100.00 | 791 | 100.00 | 3258 | 100.00 | 5919[a] | 100.00 |
| Mean need | 4.78 | | 4.45 | | 3.94 | | 1.77 | | 3.00 | |

[a]Information not available or inappropriate on 188 graduates.

(24.31 percent) of this same group indicated a need for at least "some" knowledge of agriculture in their "nonagricultural occupations".

The need value was obtained by assigning a scale value of one through five to the response choices of "none" through "very much" respectively. This numerical value was then multiplied by the number of respondents and the total was divided by the number of respondents in each classification to obtain the mean need value. The highest mean need value (4.78) was obtained for the farmers and farm managers, whereas the mean need value for the nonagricultural group indicated "little" need (1.77) for a knowledge of agriculture. The off-farm agricultural group expressed "much" need (3.94) for a knowledge of agriculture.

The graduates were asked to specify the proximity of their homes to a city with a population of 10,000 or more persons on the day of their high school graduation. Table 14 contains a frequency distribution of the graduates classified according to the agricultural classification of their occupations and the proximity of their homes to a city of 10,000 or more persons on the day of their graduation. The null hypothesis that there were no differences among the graduates

Table 14. Agricultural classification of occupations by proximity of home to city with population of 10,000 or more on day of high school graduation[a]

| Proximity | Agricultural classification | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Farmers and farm managers | | Farm laborers | | Off-farm agricultural | | Non-agricultural | | Total | |
| | N | % | N | % | N | % | N | % | N | % |
| 20 miles or less | 421 | 24.09 | 30 | 26.32 | 201 | 25.51 | 910 | 26.79 | 1562 | 25.83 |
| 21 to 40 miles | 624 | 35.70 | 33 | 28.95 | 265 | 33.63 | 1210 | 35.62 | 2132 | 35.26 |
| 41 to 60 miles | 436 | 24.94 | 28 | 24.56 | 197 | 25.00 | 776 | 22.84 | 1437 | 23.76 |
| 61 or more miles | 267 | 15.27 | 23 | 20.17 | 125 | 15.86 | 501 | 14.75 | 916 | 15.15 |
| Total | 1748 | 100.00 | 114 | 100.00 | 788 | 100.00 | 3397 | 100.00 | 6047[b] | 100.00 |

[a]Chi-square value = 11.112. Table value at five percent level with nine degrees of freedom is 16.919. Nonsignificant differences.

[b]Information not available on 60 graduates.

classified according to their occupations and their reported proximity was tested by chi-square analysis. The chi-square value of 11.112 was found to be nonsignificant, and the null hypothesis was accepted. The proximity of the graduates' homes to a city with a population of 10,000 or more persons on the day of their graduation from high school apparently did not influence their occupations grouped according to agricultural classification.

Census classification

The migration patterns of the graduates classified according to the census definitions are portrayed in Table 15. A highly significant chi-square value of 2150.097 was derived from the analysis of these data. As indicated in Table 10, a wide divergence existed between the actual and expected frequencies of the farmers and farm managers who had remained in their home communities. Graduates employed as operatives, farm laborers and laborers (except farm and mine) also tended to remain in their home communities more frequently than was expected.

Graduates classified as professional and technical workers migrated away from their home communities at a higher rate than was expected. A total of 18.66 percent had remained in their home communities and 50.96 percent had

Table 15. Census classification of occupations by migra

| Migration | | Census cl | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1 | 2[c] | 3 | 4 | 5 | 6 |
| Same or contiguous county | (N) | 204 | 1663 | 219 | 150 | 138 | 368 |
| | (%) | 18.66 | 94.06 | 42.36 | 40.76 | 41.31 | 41 |
| Same economic area | (N) | 94 | 15 | 39 | 21 | 26 | 33 |
| | (%) | 8.60 | 0.85 | 7.54 | 5.71 | 7.78 | 3 |
| Within Iowa | (N) | 259 | 24 | 94 | 59 | 58 | 93 |
| | (%) | 23.70 | 1.36 | 18.18 | 16.03 | 17.37 | 10 |
| Contiguous state | (N) | 227 | 57 | 75 | 64 | 54 | 69 |
| | (%) | 20.77 | 3.22 | 14.51 | 17.39 | 16.17 | 7 |
| Outside contiguous state | (N) | 309 | 9 | 90 | 74 | 58 | 314 |
| | (%) | 28.27 | 0.51 | 17.41 | 20.11 | 17.37 | 35 |
| Total | (N) | 1093 | 1768 | 517 | 368 | 334 | 877 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100 |

[a]Chi-square value = 2150.097. Table value at one p 48.278. Significant at one percent level.

[b]Census classifications are numbered as follows: and farm managers; 3 = Managers and proprietors; 4 = Cle Operatives; 8 = Service; 9 = Farm laborers; 10 = laborer

[c]Farmers, farm managers and farm laborers were coml

[d]Service workers and laborers (except farm and min

[e]Information not available on 141 graduates.

y migration of graduates[a]

| nsus classification[b] 6 | 7 | 8[d] | 9[c] | 10[d] | Total N | % |
|---|---|---|---|---|---|---|
| 368 | 396 | 36 | 104 | 154 | 3432 | 57.53 |
| .31 41.96 | 67.46 | 37.50 | 90.43 | 72.98 | | |
| 33 | 24 | 7 | 2 | 7 | 268 | 4.49 |
| .78 3.76 | 4.09 | 7.29 | 1.74 | 3.32 | | |
| 93 | 60 | 10 | 3 | 27 | 687 | 11.52 |
| .37 10.61 | 10.22 | 10.42 | 2.61 | 12.80 | | |
| 69 | 49 | 13 | 1 | 17 | 626 | 10.49 |
| 5.17 7.87 | 8.35 | 13.54 | 0.87 | 8.06 | | |
| 314 | 58 | 30 | 5 | 6 | 953 | 15.97 |
| 7.37 35.80 | 9.88 | 31.25 | 4.35 | 2.84 | | |
| 877 | 587 | 96 | 115 | 211 | 5966[e] | 100.00 |
| 0.00 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |

at one percent level with 28 degrees of freedom is

lows: 1 = Professional and technical; 2 = Farmers
4 = Clerical; 5 = Sales; 6 = Craftsmen; 7 =
laborers (except farm and mine).

ere combined to compute chi-square.

and mine) were combined to compute chi-square.

remained in Iowa. Over one-fourth (28.27 percent) had migrated beyond the borders of a state contiguous to Iowa.

Table 15 also reveals that the graduates classified as managers and proprietors, clerical and sales workers, and craftsmen tended to migrate away from their home communities more frequently than was expected. Graduates in military service were classified as craftsmen according to the census definition which at least partially accounted for the high proportion of craftsmen (35.80 percent) who had migrated beyond the borders of a state contiguous to Iowa.

The primary occupational income earned by graduates classified according to the census classification is presented in Table 16. The data in this table indicated that nearly one-half (49.89 percent) of the graduates were earning incomes of between $3001 and $6000 from their primary occupations. The highest percentage of the graduates in each occupational group, with the exception of the professional and technical and farm laborer classifications, received incomes within this bracket.

In the professional and technical group, 43.62 percent were earning incomes between $6001 and $9000, whereas 73.22 percent of the graduates employed as farm laborers were earning incomes of $3000 or less. The data indicated that

Table 16. Census classification of occupations by primary oc

| Income | | Census classif | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | |
| $3000 or less | (N) | 55 | 365 | 15 | 12 | 4 | 47 | |
| | (%) | 5.13 | 22.70 | 3.01 | 3.30 | 1.23 | 5.45 | |
| $3001 to $6000 | (N) | 401 | 730 | 212 | 256 | 154 | 501 | 3 |
| | (%) | 37.37 | 45.40 | 42.48 | 70.33 | 47.38 | 58.12 | |
| $6001 to $9000 | (N) | 468 | 232 | 198 | 95 | 126 | 256 | 1 |
| | (%) | 43.62 | 14.43 | 39.68 | 26.10 | 38.77 | 29.70 | |
| $9001 and over | (N) | 149 | 281 | 74 | 1 | 41 | 58 | |
| | (%) | 13.88 | 17.47 | 14.83 | 0.27 | 12.62 | 6.73 | |
| Total | (N) | 1073 | 1608 | 499 | 364 | 325 | 862 | 5 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 1 |

[a]Census classifications are numbered as follows: 1 = Pr and farm managers; 3 = Managers and proprietors; 4 = Clerical Operatives; 8 = Service; 9 = Farm laborers; 10 = laborers (ex

[b]Information not available or inappropriate on 394 gradu

by primary occupational income

| ensus classification[a] 5 | 6 | 7 | 8 | 9 | 10 | Total N | % |
|---|---|---|---|---|---|---|---|
| 4 | 47 | 31 | 9 | 82 | 19 | 639 | 11.18 |
| 1.23 | 5.45 | 5.40 | 10.34 | 73.22 | 9.09 | | |
| 4 | 501 | 358 | 60 | 28 | 150 | 2850 | 49.89 |
| 7.38 | 58.12 | 62.37 | 68.97 | 25.00 | 71.77 | | |
| 6 | 256 | 163 | 16 | 1 | 39 | 1594 | 27.90 |
| 8.77 | 29.70 | 28.40 | 18.39 | 0.89 | 18.66 | | |
| 1 | 58 | 22 | 2 | 1 | 1 | 630 | 11.03 |
| 2.62 | 6.73 | 3.83 | 2.30 | 0.89 | 0.48 | | |
| 5 | 862 | 574 | 87 | 112 | 209 | 5713[b] | 100.00 |
| 0.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |

lows: 1 = Professional and technical; 2 = Farmers
4 = Clerical; 5 = Sales; 6 = Craftsmen; 7 =
laborers (except farm and mine).

on 394 graduates.

those classified as professional and technical, managers and proprietors and as sales workers tended to receive higher incomes as contrasted with those in other occupations. Although 17.47 percent of the farmers and farm managers received incomes of $9001 and over, slightly over one-fifth (22.70 percent) received incomes of $3000 or less.

The need for a knowledge of agriculture as expressed by the graduates grouped according to the census classification of their occupations is presented in Table 17. Figure 2 contains a graphic view of the mean need value computed for each of the census classifications. The total group of respondents expressed "some" need for a knowledge of agriculture in their occupations. As was expected, the farmers, farm managers and farm laborers expressed a higher need than those classified in other categories. The graduates classified as craftsmen and as service workers indicated the least need for a knowledge of agriculture with mean need scores of 1.67 and 1.71 respectively. Sixty-four and seventy-nine hundredths percent of those classified as professional and technical expressed little or no need for a knowledge of agriculture and only 11.74 percent indicated a definite need for this knowledge.

Table 18 presents a frequency distribution of the

Table 17. Census classification of occupations by expressed n
occupations

| Need | | Census classifi | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | |
| None (1) | (N) | 480 | 7 | 146 | 175 | 89 | 571 | 26 |
| | (%) | 44.36 | 0.40 | 28.57 | 48.21 | 26.65 | 65.78 | 4 |
| Little (2) | (N) | 221 | 9 | 90 | 57 | 73 | 104 | 8 |
| | (%) | 20.43 | 0.51 | 17.61 | 15.70 | 21.86 | 11.98 | 1 |
| Some (3) | (N) | 196 | 78 | 109 | 64 | 54 | 129 | 12 |
| | (%) | 18.11 | 4.44 | 21.33 | 17.63 | 16.17 | 14.86 | 1 |
| Much (4) | (N) | 58 | 177 | 56 | 34 | 41 | 38 | 6 |
| | (%) | 5.36 | 10.09 | 10.96 | 9.37 | 12.27 | 4.38 | |
| Very much (5) | (N) | 127 | 1484 | 110 | 33 | 77 | 26 | 6 |
| | (%) | 11.74 | 84.56 | 21.53 | 9.09 | 23.05 | 3.00 | |
| Total | (N) | 1082 | 1755 | 511 | 363 | 334 | 868 | 5 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 1 |
| Mean need | | 2.20 | 4.78 | 2.79 | 2.15 | 2.83 | 1.67 | |

[a]Census classifications are numbered as follows: 1 = Pr
and farm managers; 3 = Managers and proprietors; 4 = Clerical
Operatives; 8 = Service; 9 = Farm laborers; 10 = laborers (ex

[b]Information not available or inappropriate on 202 gradu

by expressed need for knowledge of agriculture in

| Census classification[a] 5 | 6 | 7 | 8 | 9 | 10 | Total N | % |
|---|---|---|---|---|---|---|---|
| 89 | 571 | 260 | 58 | 0 | 108 | 1894 | 32.07 |
| 26.65 | 65.78 | 44.83 | 62.37 | 0.00 | 51.43 | | |
| 73 | 104 | 87 | 11 | 10 | 23 | 685 | 11.60 |
| 21.86 | 11.98 | 15.00 | 11.83 | 9.17 | 10.95 | | |
| 54 | 129 | 127 | 18 | 19 | 47 | 841 | 14.24 |
| 16.17 | 14.86 | 21.90 | 19.35 | 17.43 | 22.38 | | |
| 41 | 38 | 61 | 5 | 80 | 16 | 566 | 9.59 |
| 12.27 | 4.38 | 10.52 | 5.38 | 73.40 | 7.62 | 566 | 9.59 |
| 77 | 26 | 45 | 1 | 0 | 16 | 1919 | 32.50 |
| 23.05 | 3.00 | 7.75 | 1.07 | 0.00 | 7.62 | | |
| 334 | 868 | 580 | 93 | 109 | 210 | 5905[b] | 100.00 |
| 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |
| 2.83 | 1.67 | 2.21 | 1.71 | 3.64 | 2.09 | 2.99 | |

ollows: 1 = Professional and technical; 2 = Farmers
s; 4 = Clerical; 5 = Sales; 6 = Craftsmen; 7 =
= laborers (except farm and mine).

te on 202 graduates.

Table 18. Off-farm agricultural occupations by census clas

| Census classification | Dairy | Feed and/or seed | Soil and/or fertilizer | Off-farm agricultu Farm machinery | Poultry | Li st |
|---|---|---|---|---|---|---|
| | N | N | N | N | N | |
| Professional and technical | 2 | 9 | 15 | 3 | 1 | 5 |
| Managers and proprietors | 7 | 56 | 4 | 22 | 4 | 2 |
| Clerical | 2 | 10 | 0 | 22 | 1 | |
| Sales | 12 | 45 | 13 | 29 | 2 | |
| Craftsmen | 1 | 4 | 6 | 43 | 1 | |
| Operatives | 28 | 59 | 2 | 29 | 11 | 1 |
| Laborers (except farm and mine) | 15 | 15 | 1 | 1 | 6 | 5 |
| Total | 67 | 198 | 41 | 149 | 26 | 17 |

ıs by census classification

| f-farm agricultural occupations | | | | | | | |
|---|---|---|---|---|---|---|---|
| ırm inery | Poultry | Live-stock | Farm management | Ag. educational services | Other | Total N | % |
| N | N | N | N | N | N | | |
| 3 | 1 | 51 | 19 | 47 | 16 | 163 | 20.53 |
| 2 | 4 | 28 | 12 | 2 | 11 | 146 | 18.39 |
| 2 | 1 | 3 | 7 | 0 | 1 | 46 | 5.79 |
| 9 | 2 | 8 | 4 | 2 | 10 | 125 | 15.74 |
| 3 | 1 | 8 | 1 | 0 | 1 | 65 | 8.19 |
| 9 | 11 | 19 | 0 | 0 | 2 | 150 | 18.89 |
| 1 | 6 | 57 | 0 | 0 | 4 | 99 | 12.47 |
| 49 | 26 | 174 | 43 | 51 | 45 | 794 | 100.00 |

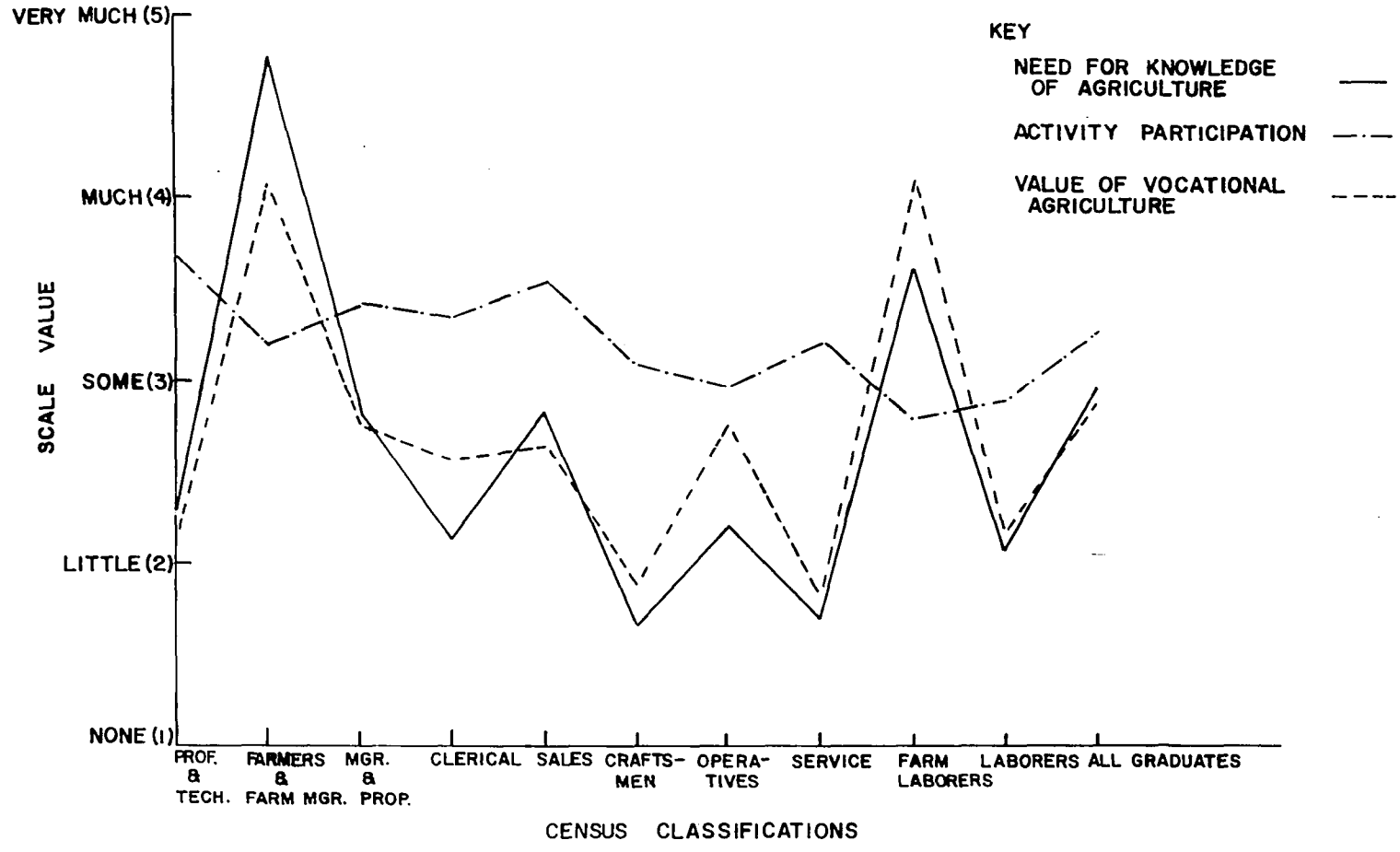


Figure 2. Mean scale values expressed by graduates

graduates employed in off-farm agricultural occupations classified according to the census definition of their occupations. One-fifth (20.53 percent) of these graduates were classified as professional and technical, 18.39 percent were classified as managers and proprietors and 18.89 percent were operatives. Forty-seven of the 51 graduates engaged in employment related to agricultural education services were classified as professional and technical, whereas only 2.01 percent of those engaged in farm machinery occupations and 4.54 percent of those engaged in the feed and/or seed industry were classified as professional and technical.

Primary occupational income

Primary occupational income was defined as that income derived from the graduate's primary occupation. Of the graduates who were employed and who reported their incomes, 626 (11.04 percent) received incomes of $3000 or less, 2829 (49.90 percent) received incomes between $3001 and $6000, 1587 (28.00 percent) received incomes between $6001 and $9000, and 627 (11.06 percent) received incomes of $9001 and over as indicated in Table 19.

The mean need for a knowledge of agriculture was highest for those graduates who received incomes of $3000 or less, and the lowest mean need score was expressed by those whose

Table 19. Primary occupational income by expressed need for knowledge of agriculture in occupations

| Need | | Income | | | | Total | |
|---|---|---|---|---|---|---|---|
| | | $3000 or less | $3001 to $6000 | $6001 to $9000 | $9001 and over | N | % |
| None (1) | (N) | 75 | 885 | 708 | 187 | 1855 | 32.72 |
| | (%) | 11.98 | 31.29 | 44.61 | 29.82 | | |
| Little (2) | (N) | 34 | 352 | 232 | 45 | 663 | 11.69 |
| | (%) | 5.43 | 12.44 | 14.62 | 7.18 | | |
| Some (3) | (N) | 73 | 481 | 209 | 44 | 807 | 14.24 |
| | (%) | 11.66 | 17.00 | 13.17 | 7.02 | | |
| Much (4) | (N) | 63 | 269 | 100 | 47 | 479 | 8.45 |
| | (%) | 10.07 | 9.51 | 6.30 | 7.50 | | |
| Very much (5) | (N) | 381 | 842 | 338 | 304 | 1865 | 32.90 |
| | (%) | 60.86 | 29.76 | 21.30 | 48.48 | | |
| Total | (N) | 626 | 2829 | 1587 | 627 | 5669[a] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |
| Mean need | | 4.02 | 2.94 | 2.45 | 3.38 | 2.97 | |

[a]Information not available or inappropriate on 438 graduates.

incomes were between $6001 and $9000. Nearly one-half (48.48 percent) of the graduates receiving incomes of $9001 and over indicated that a knowledge of agriculture was "very much" needed in their occupations.

Graduates in off-farm agricultural occupations are classified according to their incomes in Table 20. These data indicated that 64.68 percent of all graduates in off-farm agricultural occupations received incomes of $6000 or less, whereas 61.60 percent of the total population received incomes of $6000 or less as indicated in Table 12. The majority of the graduates in each of the off-farm agricultural occupational classifications received incomes between $3001 and $6000 except those in occupations classified as livestock, farm management, agricultural educational services, and other off-farm agricultural occupations. The majority of the graduates in the livestock group received incomes between $3001 and $9000. Forty-seven and fifty-four hundredths percent of the farm management group received incomes between $6001 and $9000 as did 72.00 percent of the agricultural education services group. A majority (56.67 percent) of those employed in "other" off-farm agricultural occupations received incomes of $3000 or less. Of the graduates in the livestock group, 57.14 percent received incomes of $6001 and over as did 78.00 percent of those in the agricultural education services group.

The need for a knowledge of agriculture as expressed by graduates engaged in off-farm agricultural occupations is set

Table 20. Off-farm agricultural occupations by primary occupa

| Income | | Off-farm agricultural occ | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 |
| $3000 or less | (N) | 5 | 9 | 4 | 4 | 5 | 9 |
| | (%) | 8.06 | 4.62 | 9.76 | 2.74 | 19.23 | 5. |
| $3001 to $6000 | (N) | 31 | 126 | 24 | 110 | 20 | 66 |
| | (%) | 50.00 | 64.62 | 58.54 | 75.34 | 76.92 | 37. |
| $6001 to $9000 | (N) | 20 | 44 | 10 | 24 | 1 | 66 |
| | (%) | 32.26 | 22.56 | 24.39 | 16.44 | 3.85 | 37. |
| $9001 and over | (N) | 6 | 16 | 3 | 8 | 0 | 34 |
| | (%) | 9.68 | 8.20 | 7.31 | 5.48 | 0.00 | 19. |
| Total | (N) | 62 | 195 | 41 | 146 | 26 | 175 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100. |

[a]Off-farm agricultural occupations are numbered as follo
3 = Soil and/or fertilizer; 4 = Farm machinery; 5 = Poultry;
(including farm managers); 8 = Agricultural educational servi
laborers).

[b]Information not available or inappropriate on 34 gradua

:imary occupational income

| icultural occupations[a] | | | | | Total | |
|---|---|---|---|---|---|---|
| 5 | 6 | 7 | 8 | 9 | N | % |
| 5 | 9 | 2 | 1 | 85 | 124 | 13.69 |
| 19.23 | 5.15 | 3.28 | 2.00 | 56.67 | | |
| 20 | 66 | 28 | 10 | 47 | 462 | 50.99 |
| 76.92 | 37.71 | 45.90 | 20.00 | 31.33 | | |
| 1 | 66 | 29 | 36 | 13 | 243 | 26.82 |
| 3.85 | 37.71 | 47.54 | 72.00 | 8.67 | | |
| 0 | 34 | 2 | 3 | 5 | 77 | 8.50 |
| 0.00 | 19.43 | 3.28 | 6.00 | 3.33 | | |
| 26 | 175 | 61 | 50 | 150 | 906[b] | 100.00 |
| 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |

red as follows: 1 = Dairy; 2 = Feed and/or seed;
= Poultry; 6 = Livestock; 7 = Farm management
tional services; 9 = Other (including farm

on 34 graduates.

forth in Table 21. Graduates engaged in agricultural education services expressed the greatest need (4.86) and also tended to receive the highest income as indicated in Table 20. The graduates in the soil and/or fertilizer group, however, expressed a strong need (4.46) for a knowledge of agriculture in their occupations but received apparently lower incomes in comparison as indicated by data in Table 20. The lowest mean need score was expressed by the graduates in the dairy category. The mean need value of all responding graduates was 4.02 which revealed that they felt "much" need for a knowledge of agriculture as a total group.

Migration

The migration of the graduates away from their home communities was described earlier in Table 11. As a further elaboration Table 22 presents data pertaining to the incomes of the graduates classified according to the extent of their migration. This information reveals that the incomes of the graduates were related to their migration away from their home communities. Nearly 72 percent of the graduates who remained in their home communities received incomes of $6000 and less, whereas 58.07 percent of those who had migrated beyond the borders of a state contiguous to Iowa received incomes of $6001 and over. Of the total group of graduates

Table 21. Off-farm agricultural occupations by expressed need occupation

| Need | | Off-farm agricultural occup 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| None (1) | (N) | 10 | 10 | 1 | 0 | 0 | 32 |
| | (%) | 14.93 | 5.08 | 2.44 | 0.00 | 0.00 | 17.88 |
| Little (2) | (N) | 6 | 7 | 1 | 3 | 2 | 18 |
| | (%) | 8.96 | 3.55 | 2.44 | 2.03 | 7.69 | 10.06 |
| Some (3) | (N) | 30 | 29 | 4 | 41 | 8 | 31 |
| | (%) | 44.77 | 14.72 | 9.76 | 27.70 | 30.77 | 17.32 |
| Much (4) | (N) | 13 | 40 | 7 | 47 | 9 | 33 |
| | (%) | 19.40 | 20.30 | 17.07 | 31.76 | 34.62 | 18.43 |
| Very much (5) | (N) | 8 | 111 | 28 | 57 | 7 | 65 |
| | (%) | 11.94 | 56.35 | 68.29 | 38.51 | 26.92 | 36.31 |
| Total | (N) | 67 | 197 | 41 | 148 | 26 | 179 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| Mean need | | 3.04 | 4.19 | 4.46 | 4.07 | 3.81 | 3.45 |

[a]Off-farm agricultural occupations are numbered as follows 3 = Soil and/or fertilizer; 4 = Farm machinery; 5 = Poultry; 6 (including farm managers); 8 = Agricultural educational service laborers).

xpressed need for knowledge of agriculture in

| cultural occupations[a] | | | | | | |
|---|---|---|---|---|---|---|
| 5 | 6 | 7 | 8 | 9 | Total N | % |
| 0 | 32 | 0 | 0 | 6 | 59 | 6.37 |
| 0.00 | 17.88 | 0.00 | 0.00 | 3.82 | | |
| 2 | 18 | 0 | 0 | 4 | 41 | 4.43 |
| 7.69 | 10.06 | 0.00 | 0.00 | 2.55 | | |
| 8 | 31 | 12 | 1 | 18 | 174 | 18.79 |
| 30.77 | 17.32 | 20.00 | 1.96 | 11.46 | | |
| 9 | 33 | 10 | 5 | 33 | 197 | 21.27 |
| 34.62 | 18.43 | 16.67 | 9.80 | 21.02 | | |
| 7 | 65 | 38 | 45 | 96 | 455 | 49.14 |
| 26.92 | 36.31 | 63.33 | 88.24 | 61.15 | | |
| 26 | 179 | 60 | 51 | 157 | 926 | 100.00 |
| 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |
| 3.81 | 3.45 | 4.43 | 4.86 | 4.33 | 4.02 | |

ered as follows: 1 = Dairy; 2 = Feed and/or seed;
5 = Poultry; 6 = Livestock; 7 = Farm management
ational services; 9 = Other (including farm

Table 22. Migration of graduates by primary occupational income

| Income | | Migration: Same or contiguous county | Same economic area | Within Iowa | Contiguous state | Outside contiguous state | Total N | Total % |
|---|---|---|---|---|---|---|---|---|
| $3000 or less | (N) | 522 | 15 | 54 | 41 | 65 | 697 | 12.02 |
| | (%) | 16.04 | 5.60 | 7.76 | 6.56 | 6.81 | | |
| $3001 to $6000 | (N) | 1810 | 140 | 329 | 261 | 335 | 2875 | 49.59 |
| | (%) | 55.61 | 52.24 | 47.27 | 41.76 | 35.12 | | |
| $6001 to $9000 | (N) | 597 | 90 | 260 | 266 | 383 | 1596 | 27.53 |
| | (%) | 18.34 | 33.58 | 37.36 | 42.56 | 40.15 | | |
| $9001 and over | (N) | 326 | 23 | 53 | 57 | 171 | 630 | 10.86 |
| | (%) | 10.01 | 8.58 | 7.61 | 9.12 | 17.92 | | |
| Total | (N) | 3255 | 268 | 696 | 625 | 954 | 5798[a] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Information not available or inappropriate on 309 graduates.

from whom data were available, 49.59 percent received incomes of between $3001 and $6000. Of those who had not migrated from their home communities, 55.61 percent received incomes of between $3001 and $6000 as contrasted with 35.12 percent of those who had migrated beyond a state contiguous to Iowa.

## Factors Related to Occupations of Graduates

Data pertaining to the occupations of the graduates have been presented in Tables 10 through 22. The occupations were described in terms of the census classification, agricultural classification, and income received therefrom. The migration of the graduates resulting from these occupational choices has also been set forth. The following paragraphs contain descriptions and analyses of selected factors relating to the occupations of the graduates as described previously in this chapter.

### Home background

Selected environmental factors relating to the home background of the graduates were obtained and analyzed. These factors, which included geographical, socio-economic, and family characteristics, were compared with the descriptive classifications of the occupations of the graduates.

Iowa economic area The graduates from each participating high school were coded according to the Iowa economic area in which the school was located. The five economic areas within Iowa were outlined in Figure 1.

A chi-square analysis of the actual and expected frequencies of the graduates grouped according to the agricultural classification of their occupations and the Iowa economic area of the high schools from which they had been graduated is presented in Table 23. The analysis produced a chi-square value of 55.140 which was significant at the one percent level. An examination of the chi-square analysis of the data in Table 23 revealed that graduates from the Southern Pasture area of Iowa were engaged as farmers and farm managers less frequently than was expected. Conversely, the graduates from this area were engaged in nonagricultural occupations more frequently than was expected. The analysis also indicated that more of the graduates from the Eastern Livestock area tended to be classed as farmers and farm managers and fewer graduates from this area tended to be engaged in off-farm agricultural occupations than were expected. Also, more of the graduates from the Western Livestock area were engaged in off-farm agricultural occupations than was expected. The bar graph in Figure 3 also

Table 23. Agricultural classification of occupations by Iowa economic area of high schools[a]

| Economic area | | Agricultural classification: Farmers and farm managers | Farm laborers | Off-farm agricultural | Non-agricultural | Total N | Total % |
|---|---|---|---|---|---|---|---|
| Northeast dairy | (N) | 384 | 27 | 183 | 697 | 1291 | 21.18 |
| | (%) | 21.72 | 23.48 | 23.05 | 20.39 | | |
| Eastern livestock | (N) | 277 | 14 | 91 | 474 | 856 | 14.04 |
| | (%) | 15.67 | 12.17 | 11.46 | 13.86 | | |
| Southern pasture | (N) | 262 | 16 | 132 | 744 | 1154 | 18.93 |
| | (%) | 14.82 | 13.91 | 16.62 | 21.76 | | |
| Western livestock | (N) | 444 | 28 | 223 | 789 | 1484 | 24.34 |
| | (%) | 25.11 | 24.35 | 28.09 | 23.08 | | |
| North central grain | (N) | 401 | 30 | 165 | 715 | 1311 | 21.51 |
| | (%) | 22.68 | 26.09 | 20.78 | 20.91 | | |
| Total | (N) | 1768 | 115 | 794 | 3419 | 6096[b] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square value = 55.140. Table value at one percent level with 12 degrees of freedom is 26.217. Significant at one percent level.

[b]Information not available on 11 graduates.

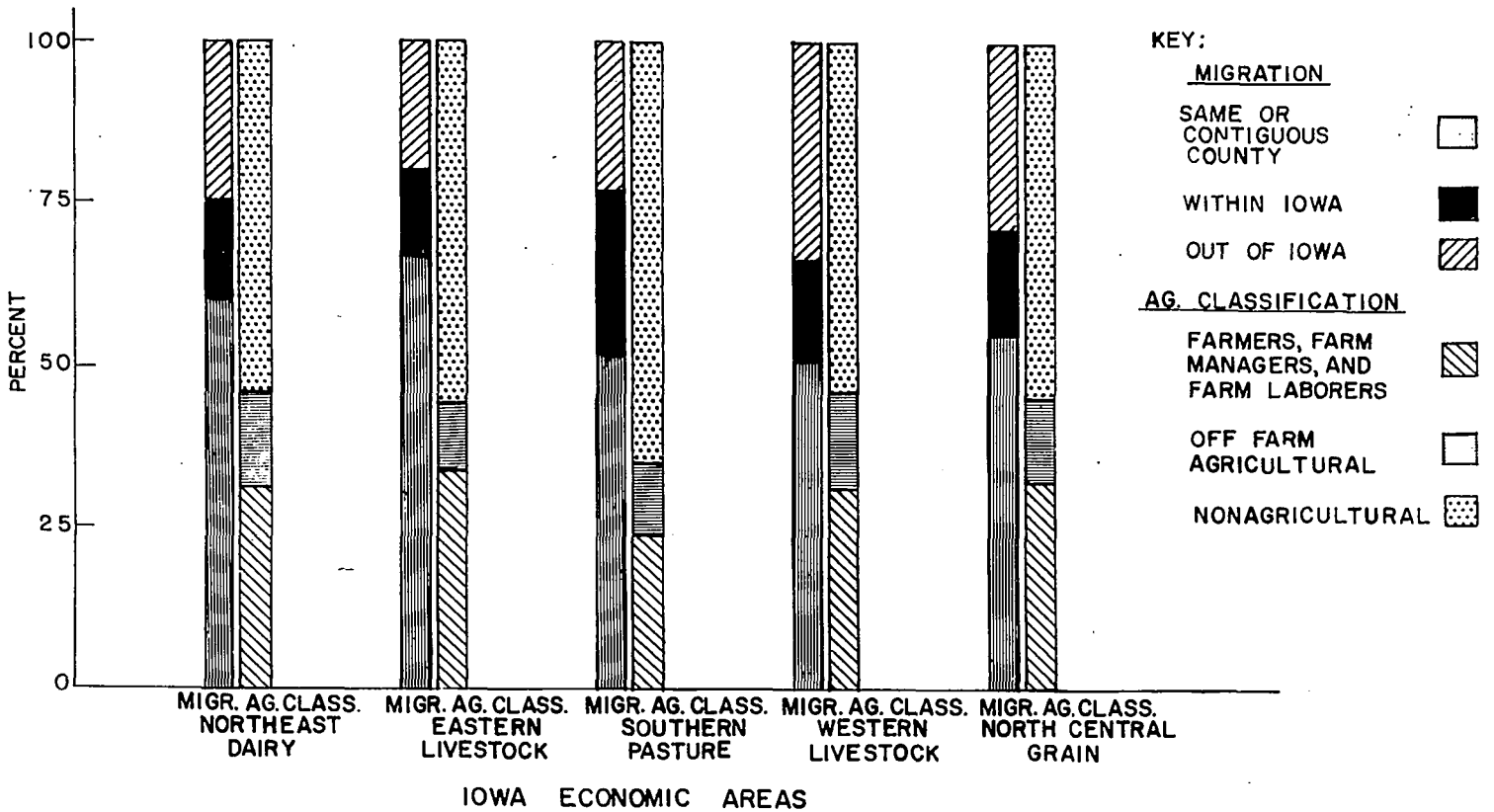


Figure 3. Migration and agricultural classification of occupations of graduates by Iowa economic areas

portrays the agricultural classification of the graduates from each of the Iowa economic areas.

A frequency distribution of the graduates classified according to the Iowa economic areas of the high schools from which they were graduated and the census classification of their occupations appears in Table 24. Of those graduates classified as professional and technical, the highest number and proportion from within the Iowa economic areas originated in the Western Livestock area of Iowa. In comparison with the percentages for the total population, slightly fewer of the graduates from the Western Livestock area were classified as craftsmen and operatives, whereas the remaining percentages were similar.

The percentage of the graduates from the Northeast Dairy area in each of the census classifications corresponded closely with the average percentages for the total population. The slightly higher percentages of graduates from the Eastern Livestock area employed as farmers, farm managers and craftsmen tended to be offset by the lower percentages engaged in the professional and technical areas and employed as managers and proprietors.

The lower percentage (23.25 percent) of the graduates from the Southern Pasture area engaged as farmers and farm

Table 24. Census classification of occupations by Iowa economic area of high schools

| Census classification | | Iowa economic area: Northeast dairy | Eastern livestock | Southern pasture | Western livestock | North central grain | Total N | Total % |
|---|---|---|---|---|---|---|---|---|
| Professional and technical | (N) | 225 | 133 | 196 | 292 | 247 | 1093 | 18.32 |
| | (%) | 17.86 | 15.83 | 17.39 | 20.03 | 19.28 | | |
| Farmers and farm managers | (N) | 384 | 277 | 262 | 444 | 401 | 1768 | 29.63 |
| | (%) | 30.48 | 32.98 | 23.25 | 30.45 | 31.30 | | |
| Managers and proprietors | (N) | 104 | 46 | 120 | 134 | 113 | 517 | 8.66 |
| | (%) | 8.25 | 5.48 | 10.65 | 9.19 | 8.82 | | |
| Clerical | (N) | 74 | 69 | 68 | 79 | 78 | 368 | 6.17 |
| | (%) | 5.87 | 8.21 | 6.03 | 5.42 | 6.09 | | |
| Sales | (N) | 68 | 34 | 63 | 94 | 75 | 334 | 5.60 |
| | (%) | 5.40 | 4.05 | 5.59 | 6.45 | 5.86 | | |
| Craftsmen | (N) | 188 | 143 | 194 | 190 | 162 | 877 | 14.70 |
| | (%) | 14.92 | 17.02 | 17.21 | 13.03 | 12.65 | | |
| Operatives | (N) | 120 | 85 | 133 | 130 | 119 | 587 | 9.84 |
| | (%) | 9.52 | 10.12 | 11.80 | 8.92 | 9.29 | | |
| Service | (N) | 25 | 7 | 23 | 19 | 22 | 96 | 1.61 |
| | (%) | 1.99 | 0.83 | 2.04 | 1.30 | 1.72 | | |

Table 24 (Continued)

| Census classification | | Iowa economic area: Northeast dairy | Eastern livestock | Southern pasture | Western livestock | North central grain | Total N | Total % |
|---|---|---|---|---|---|---|---|---|
| Farm laborers | (N) | 27 | 14 | 16 | 28 | 30 | 115 | 1.93 |
| | (%) | 2.14 | 1.67 | 1.42 | 1.92 | 2.34 | | |
| Laborers (except farm and mine) | (N) | 45 | 32 | 52 | 48 | 34 | 211 | 3.54 |
| | (%) | 3.57 | 3.81 | 4.62 | 3.29 | 2.65 | | |
| Total | (N) | 1260 | 840 | 1127 | 1458 | 1281 | 5966[a] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Information not available or inappropriate on 141 graduates.

managers, as compared to 29.63 percent for the total population, was offset by slightly higher percentages of those graduates classified as managers and proprietors, craftsmen, operatives and laborers (other than farm and mine).

The graduates from the North Central grain area tended to be classified in proportions similar to the total population. Slightly more of these graduates were classified as professional and technical and as farmers and farm managers, whereas slightly fewer were engaged as craftsmen and laborers (except farm and mine).

A chi-square analysis of the frequency distribution of the graduates classified according the Iowa economic area of their high schools and migration away from their home communities is presented in Table 25. The chi-square value of 265.007, significant at the one percent level, refuted the null hypothesis that there were no differences in the extent of migration of the graduates classified according to Iowa economic areas.

An examination of Table 25 indicates that 26.67 percent of the graduates had migrated out of Iowa at the time of the investigation, whereas 56.79 percent had remained in their home communities. The graduates from the Northeast Dairy and Eastern livestock areas tended to migrate less extensively,

Table 25. Migration of graduates by Iowa economic area of high schools[a]

| Migration | | Iowa economic area | | | | | Total | |
|---|---|---|---|---|---|---|---|---|
| | | Northeast dairy | Eastern livestock | Southern pasture | Western livestock | North central grain | N | % |
| Same or contiguous county | (N) | 786 | 574 | 607 | 773 | 728 | 3468 | 56.79 |
| | (%) | 60.79 | 66.98 | 52.55 | 51.84 | 55.53 | | |
| Same economic area | (N) | 56 | 54 | 25 | 59 | 80 | 274 | 4.49 |
| | (%) | 4.33 | 6.30 | 2.17 | 3.96 | 6.10 | | |
| Within Iowa | (N) | 134 | 61 | 257 | 156 | 128 | 736 | 12.05 |
| | (%) | 10.36 | 7.12 | 22.25 | 10.46 | 9.76 | | |
| Contiguous state | (N) | 148 | 54 | 92 | 225 | 128 | 647 | 10.59 |
| | (%) | 11.45 | 6.30 | 7.97 | 15.09 | 9.76 | | |
| Outside contiguous state | (N) | 169 | 114 | 174 | 278 | 247 | 982 | 16.08 |
| | (%) | 13.07 | 13.30 | 15.06 | 18.65 | 18.85 | | |
| Total | (N) | 1293 | 857 | 1155 | 1491 | 1311 | 6107 | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square value = 265.007. Table value at the one per cent level with 16 degrees of freedom is 32.000. Significant at one percent level.

whereas those from the Southern Pasture and Western Livestock areas tended to migrate more extensively as compared to the total population. The migration pattern of the graduates from the North Central Grain area tended to coincide with the average pattern.

The migration pattern of the graduates from the Southern Pasture area revealed significant differences from the average pattern. In comparison with 73.33 percent of the total population, 76.97 percent of the graduates from the Southern Pasture area remained in Iowa. Of these graduates, however, 22.25 percent migrated out of the Southern Pasture area to new locations in Iowa as compared to only 12.05 percent of the total population who had migrated similarly. Figure 3 portrays the migration of the graduates classified by Iowa economic area.

The data in Table 26 indicated that minor differences existed in the incomes of the graduates classified according to the Iowa economic area of their high schools. Slightly more of the graduates from the Northeast Dairy area received incomes of $3000 or less, slightly more of the graduates from the Southern Pasture area received incomes between $3001 and $6000, and slightly more of those from the North Central Grain area received incomes of $9001 and over in comparison

Table 26. Primary occupational income by Iowa economic area of high schools

| Income | | Iowa economic area | | | | | Total | |
|---|---|---|---|---|---|---|---|---|
| | | Northeast dairy | Eastern livestock | Southern pasture | Western livestock | North central grain | N | % |
| $3000 or less | (N) | 163 | 92 | 131 | 163 | 148 | 697 | 12.02 |
| | (%) | 13.35 | 11.44 | 11.93 | 11.41 | 11.88 | | |
| $3001 to $6000 | (N) | 587 | 390 | 562 | 713 | 623 | 2875 | 49.59 |
| | (%) | 48.07 | 48.51 | 51.18 | 49.89 | 50.00 | | |
| $6001 to $9000 | (N) | 341 | 232 | 294 | 405 | 324 | 1596 | 27.53 |
| | (%) | 27.93 | 28.86 | 26.78 | 28.34 | 26.00 | | |
| $9001 and | (N) | 130 | 90 | 111 | 148 | 151 | 630 | 10.86 |
| | (%) | 10.65 | 11.19 | 10.11 | 10.36 | 12.12 | | |
| Total | (N) | 1221 | 804 | 1098 | 1429 | 1246 | 5798[a] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Information not available or inappropriate on 309 graduates.

to the percentages for the total population.

Level of living index A level of living index as derived by Jehlik (25, p. 45) was established for each graduate's home location at the time of his graduation from high school. The index value, which ranged from one to six, was established from the level of living index value for the township in which the graduate resided.

Table 27 revealed that a higher percentage of the graduates from homes with high index values tended to be farmers and farm managers than did graduates from homes with low index values. Likewise, more graduates (63.30 percent) from low index-value homes tended to be engaged in nonagricultural occupations, whereas fewer graduates (47.99 percent) from the high index-value homes were employed in nonagricultural occupations. The level of living index apparently had little influence on the entry of graduates into off-farm agricultural occupations.

A frequency distribution of the migration patterns of the graduates classified according to the level of living index of their homes at the time of their graduation from high school is presented in Table 28. A chi-square analysis of these data produced a highly significant value of 49.653. More of the graduates from low index-value homes migrated out

Table 27. Level of living index of homes of graduates by agricultural classification of occupations

| Agricultural classification | | Level of living index Low (1-2) | Medium (3-4) | High (5-6) | Total N | % |
|---|---|---|---|---|---|---|
| Farmers and farm managers | (N) | 187 | 738 | 547 | 1472 | 32.00 |
| | (%) | 24.51 | 31.81 | 36.06 | | |
| Farm laborers | (N) | 6 | 55 | 36 | 97 | 2.11 |
| | (%) | 0.79 | 2.37 | 2.37 | | |
| Off-farm agricultural | (N) | 87 | 325 | 206 | 618 | 13.43 |
| | (%) | 11.40 | 14.01 | 13.58 | | |
| Nonagricultural | (N) | 483 | 1202 | 728 | 2413 | 52.46 |
| | (%) | 63.30 | 51.81 | 47.99 | | |
| Total | (N) | 763 | 2320 | 1517 | 4600[a] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | | |

[a]Information not available on 1507 graduates.

of the economic areas of their homes but remained in Iowa than was expected. Of the graduates from high index-value homes, more (62.16 percent) remained in their home communities and fewer (8.57 percent) migrated to new locations within Iowa but outside the economic area of their home communities than was expected.

Table 28. Level of living index of homes of graduates by migration of graduates[a]

| Migration | | Level of living index Low (1-2) | Medium (3-4) | High (5-6) | Total N | % |
|---|---|---|---|---|---|---|
| Same or contiguous county | (N) | 436 | 1423 | 943 | 2802 | 60.82 |
| | (%) | 57.14 | 61.15 | 62.16 | | |
| Same economic area | (N) | 27 | 98 | 80 | 205 | 4.45 |
| | (%) | 3.54 | 4.21 | 5.28 | | |
| Within Iowa | (N) | 134 | 246 | 130 | 510 | 11.07 |
| | (%) | 17.56 | 10.57 | 8.57 | | |
| Contiguous state | (N) | 61 | 239 | 139 | 439 | 9.53 |
| | (%) | 8.00 | 10.27 | 9.16 | | |
| Outside contiguous state | (N) | 105 | 321 | 225 | 651 | 14.13 |
| | (%) | 13.76 | 13.80 | 14.83 | | |
| Total | (N) | 763 | 2327 | 1517 | 4607[b] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square value = 49.653. Table value at one percent level with eight degrees of freedom is 20.090. Significant at one percent level.

[b]Information not available on 1500 graduates.

Father's occupational status Two primary measures of the occupational status of the graduates' fathers were established by the respondents. These measures included the size of the home farm and the classification of the father's

farming status on the day of his son's graduation from high school.

Size of home farm Of the graduates who provided information and whose fathers were farming at the time of their graduation from high school, 30.97 percent were farming or were employed as farm managers at the time of the investigation as indicated in Table 29. Only 24.73 percent of the graduates whose home farms included 160 acres or less were farmers or farm managers, whereas 37.43 percent of those graduates with home farms of 321 acres and over were similarly employed. Although the size of the home farm apparently did not influence the number of graduates entering off-farm agricultural occupations, the data in Table 29 revealed that a higher percentage of the graduates from the smaller home farms entered nonagricultural occupations as compared to those from larger home farms. The chi-square analysis of these data produced significant findings (chi-square = 68.064) and revealed significant differences among the graduates so classified.

A chi-square analysis of the differences among the actual and expected frequencies of the graduates classified according to their migration patterns and the size of their home farms was conducted. The results of this analysis,

Table 29. Size of home farms of graduates by agricultural classification of occupations[a]

| Agricultural classification | | Size of home farms in acres 1-160 | 161-320 | 321 and over | Total N | % |
|---|---|---|---|---|---|---|
| Farmers and farm managers | (N) | 493 | 850 | 335 | 1678 | 30.97 |
| | (%) | 24.73 | 33.60 | 37.43 | | |
| Farm laborers | (N) | 38 | 46 | 23 | 107 | 1.98 |
| | (%) | 1.91 | 1.82 | 2.57 | | |
| Off-farm agricultural | (N) | 269 | 319 | 117 | 705 | 13.01 |
| | (%) | 13.50 | 12.61 | 13.07 | | |
| Nonagricultural | (N) | 1193 | 1315 | 420 | 2928 | 54.04 |
| | (%) | 59.86 | 51.97 | 46.93 | | |
| Total | (N) | 1993 | 2530 | 895 | 5418[b] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square value = 68.064. Table value at one percent level with six degrees of freedom is 16.812. Significant at one percent level.

[b]Information not available or inappropriate on 689 graduates.

which are set forth in Table 30, revealed nonsignificant differences. The migration pattern of the graduate was not a function of the size of the home farms according to this analysis.

Table 30. Size of home farms of graduates by migration of graduates[a]

| Migration | | Size of home farms in acres 1-160 | 161-320 | 321 and over | Total N | % |
|---|---|---|---|---|---|---|
| Same or contiguous county | (N) | 1117 | 1474 | 512 | 3103 | 57.20 |
| | (%) | 55.91 | 58.22 | 57.21 | | |
| Same economic area | (N) | 79 | 127 | 40 | 246 | 4.54 |
| | (%) | 3.95 | 5.02 | 4.47 | | |
| Within Iowa | (N) | 248 | 293 | 110 | 651 | |
| | (%) | 12.41 | 11.57 | 12.29 | | |
| Contiguous state | (N) | 239 | 249 | 90 | 578 | 10.65 |
| | (%) | 11.96 | 9.83 | 10.05 | | |
| Outside contiguous state | (N) | 315 | 389 | 143 | 847 | 15.61 |
| | (%) | 15.77 | 15.36 | 15.98 | | |
| Total | (N) | 1998 | 2532 | 895 | 5425[b] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square value = 9.683. Table value at five percent level with eight degrees of freedom is 15.507. Nonsignificant differences.

[b]Information not available or inappropriate on 682 graduates.

Classification of farming status The farming status of the fathers of the graduates were classified as: employed operator, renter only, owner-renter, and owner only.

A chi-square value of 124.749 was derived from the analysis of the data presented in Table 31. This value, which was significant at the one percent level, indicated that fewer of the graduates whose fathers were employed farm operators or renters had become farmers and farm managers, whereas a higher percentage of the sons of owner-renters and owners had become farmers and farm managers. The data in this table also revealed that a higher percentage of sons of employed farm operators and renters had become employed in off-farm agricultural and nonagricultural occupations than was expected. Furthermore, fewer of the graduates whose fathers were classified as owners were employed in off-farm agricultural occupations.

Table 32 presents data pertaining to the migration patterns of the graduates classified according to the farming status of their fathers. The chi-square analysis of these data produced a chi-square of 18.033 which was significant at the five percent level. The graduates whose fathers were employed operators or renters tended to migrate away from their home communities to an extent greater than was expected.

Father's education The formal education of the graduates' fathers as compared to the census classification

Table 31. Classification of father's farming status by agricultural classification of graduate's occupation[a]

| Agricultural classification | | Father's farming status: Employed farm operator or renter | Owner-renter | Owner | Total N | Total % |
|---|---|---|---|---|---|---|
| Farmers and farm managers | (N) | 323 | 449 | 914 | 1686 | 31.00 |
| | (%) | 20.69 | 34.97 | 35.24 | | |
| Farm laborers | (N) | 34 | 28 | 44 | 106 | 1.95 |
| | (%) | 2.18 | 2.18 | 1.70 | | |
| Off-farm agricultural | (N) | 255 | 184 | 275 | 714 | 13.13 |
| | (%) | 16.34 | 14.33 | 10.60 | | |
| Non-agricultural | (N) | 949 | 623 | 1361 | 2933 | 53.92 |
| | (%) | 60.79 | 48.52 | 52.46 | | |
| Total | (N) | 1561 | 1284 | 2594 | 5439[b] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square value = 124.749. Table value at one percent level with six degrees of freedom is 16.812. Significant at one percent level.

[b]Information not available or inappropriate on 668 graduates.

Table 32. Migration of graduate by classification of father's farming status[a]

| Migration | | Father's farming status: Employed farm operator or renter | Owner-renter | Owner | Total N | Total % |
|---|---|---|---|---|---|---|
| Same or contiguous county | (N) | 848 | 755 | 1512 | 3115 | 57.22 |
| | (%) | 54.32 | 58.71 | 58.22 | | |
| Same economic area | (N) | 90 | 63 | 95 | 248 | 5.46 |
| | (%) | 5.77 | 4.90 | 3.66 | | |
| Within Iowa | (N) | 186 | 160 | 313 | 659 | 12.10 |
| | (%) | 11.92 | 12.44 | 12.05 | | |
| Contiguous state | (N) | 175 | 123 | 282 | 580 | 10.65 |
| | (%) | 11.21 | 9.56 | 10.86 | | |
| Outside contiguous state | (N) | 262 | 185 | 395 | 842 | 15.47 |
| | (%) | 16.78 | 14.39 | 15.21 | | |
| Total | (N) | 1561 | 1286 | 2597 | 5444[b] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square = 18.033. Table value with eight degrees of freedom at the five percent level is 15.507 and at the one percent level is 20.090. Significant at five percent level.

[b]Information not available or inappropriate on 663 graduates.

of the occupations of the graduates is set forth in Table 33. The chi-square analysis produced a value of 87.221 which was significant at the one percent level.

Of the 478 graduates whose fathers had been enrolled for one or more years of college, 28.03 percent were engaged in the professional and technical occupational classification as compared to 14.89 percent of the graduates whose fathers' educations were terminated prior to reaching the eighth grade level. The data also reveal that a relatively higher proportion (11.51 percent) of the graduates whose fathers had enrolled in one or more years of college were employed in the manager and proprietor occupational classification, whereas lower percentages were classified as craftsmen and operatives.

The distribution of the occupations of the graduates whose fathers had attended one or more years of high school did not deviate extensively from the expected pattern. Likewise, the occupations of the graduates whose fathers had attained at least an eighth grade education were distributed as expected among the census classifications except that fewer graduates were classified in the professional and technical area. A higher percentage (12.03 percent) of the graduates whose fathers had terminated their education prior

Table 33. Census classification of graduate's occupation by father's education[a]

| Census classification | | Father's education: Less than eighth grade | Eighth grade | One to four years high school | One or more years college | Total N | Total % |
|---|---|---|---|---|---|---|---|
| Professional and technical | (N) | 99 | 473 | 361 | 134 | 1067 | 18.47 |
| | (%) | 14.89 | 16.76 | 19.92 | 28.03 | | |
| Farmers and farm managers | (N) | 198 | 859 | 527 | 131 | 1715 | 29.69 |
| | (%) | 29.77 | 30.44 | 29.08 | 27.41 | | |
| Managers and proprietors | (N) | 58 | 244 | 144 | 55 | 501 | 8.67 |
| | (%) | 8.72 | 8.65 | 7.95 | 11.51 | | |
| Clerical | (N) | 44 | 160 | 114 | 37 | 355 | 6.14 |
| | (%) | 6.62 | 5.67 | 6.29 | 7.74 | | |
| Sales | (N) | 39 | 156 | 100 | 33 | 328 | 5.68 |
| | (%) | 5.87 | 5.53 | 5.52 | 6.90 | | |
| Craftsmen | (N) | 92 | 420 | 292 | 44 | 848 | 14.68 |
| | (%) | 13.83 | 14.88 | 16.11 | 9.21 | | |
| Operatives | (N) | 80 | 302 | 160 | 24 | 566 | 9.80 |
| | (%) | 12.03 | 10.70 | 8.83 | 5.02 | | |

[a]Chi-square value = 87.221. Table value at the one percent level with 24 degrees of freedom is 42.980. Significant at the one percent level.

Table 33 (Continued)

| Census classification | | Father's education: Less than eighth grade | Eighth grade | One to four years high school | One or more years college | Total N | % |
|---|---|---|---|---|---|---|---|
| Service[b] | (N) | 11 | 49 | 26 | 2 | 88 | 1.52 |
| | (%) | 1.65 | 1.73 | 1.44 | 0.42 | | |
| Farm laborers | (N) | 15 | 51 | 36 | 7 | 109 | 1.89 |
| | (%) | 2.26 | 1.81 | 1.99 | 1.46 | | |
| Laborers (except farm and mine) | (N) | 29 | 108 | 52 | 11 | 200 | 3.46 |
| | (%) | 4.36 | 3.83 | 2.87 | 2.30 | | |
| Total | (N) | 665 | 2822 | 1812 | 478 | 5777[c] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |

[b]Service workers not included in chi-square analysis.

[c]Information not available or inappropriate on 330 graduates.

to reaching the eighth grade were employed as operatives as compared to the total population (9.80 percent).

The incomes of the graduates classified according to the education of their fathers are set forth in Table 34. Only minor differences were noted in the educational attainments of the fathers of the graduates who received incomes of $3000 or less. Wide differences were noted, however, among the graduates who received incomes of between $3001 and $6000 and of $9001 and over. Nearly one-half (50.87 percent) of the graduates whose fathers had terminated their education prior to reaching the eighth grade were receiving incomes of between $3001 and $6000, whereas only 36.09 percent of the graduates whose fathers had attended college were receiving incomes within this bracket. Of the graduates whose fathers had attended college, 26.34 percent were receiving incomes of $9001 and over, whereas only 7.63 percent of the graduates whose fathers had attained less than an eighth grade education were in this same income bracket.

Mother's education The relation of the education of the graduates' mothers to their occupational classifications is described in Table 35. An analysis of the data produced a chi square of 96.180 which was significant at the one percent level.

Table 34. Graduate's primary occupational income by father's education

| Income | | Father's education: Less than eighth grade | Eighth grade | One to four years high school | One or more years college | Total N | Total % |
|---|---|---|---|---|---|---|---|
| $3000 or less | (N) | 70 | 337 | 210 | 56 | 673 | 11.94 |
| | (%) | 11.13 | 12.82 | 11.45 | 10.31 | | |
| $3001 to $6000 | (N) | 320 | 1447 | 824 | 196 | 2787 | 49.46 |
| | (%) | 50.87 | 55.04 | 44.93 | 36.09 | | |
| $6001 to $9000 | (N) | 191 | 689 | 525 | 148 | 1553 | 27.56 |
| | (%) | 30.37 | 26.21 | 28.63 | 27.26 | | |
| $9001 and over | (N) | 48 | 156 | 275 | 143 | 622 | 11.04 |
| | (%) | 7.63 | 5.93 | 14.99 | 26.34 | | |
| Total | (N) | 629 | 2629 | 1834 | 543 | 5635[a] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Information not available or inappropriate on 472 graduates.

Table 35. Census classification of graduate's occupation by mother's education[a]

| Census classification | | Mother's education: Eighth grade or less | One to four years high school | One or more years college | Total N | Total % |
|---|---|---|---|---|---|---|
| Professional and technical | (N) | 328 | 459 | 282 | 1069 | 18.48 |
| | (%) | 15.82 | 17.35 | 26.48 | | |
| Farmers and farm managers | (N) | 621 | 796 | 295 | 1712 | 29.60 |
| | (%) | 29.96 | 30.08 | 27.70 | | |
| Managers and proprietors | (N) | 184 | 233 | 87 | 504 | 8.71 |
| | (%) | 8.88 | 8.81 | 8.17 | | |
| Clerical | (N) | 123 | 157 | 79 | 359 | 6.21 |
| | (%) | 5.93 | 5.93 | 7.42 | | |
| Sales | (N) | 106 | 152 | 68 | 326 | 5.64 |
| | (%) | 5.11 | 5.74 | 6.39 | | |
| Craftsmen | (N) | 298 | 417 | 129 | 844 | 14.59 |
| | (%) | 14.38 | 15.76 | 12.11 | | |
| Operatives | (N) | 243 | 256 | 65 | 564 | 9.75 |
| | (%) | 11.72 | 9.68 | 6.10 | | |

[a]Chi-square value = 96.180. Table value at one percent level with 18 degrees of freedom is 34.805. Significant at one percent level.

Table 35 (Continued)

| Census classification | | Mother's education: Eighth grade or less | One to four years high school | One or more years college | Total N | Total % |
|---|---|---|---|---|---|---|
| Service | (N) | 40 | 41 | 11 | 92 | 1.59 |
| | (%) | 1.93 | 1.55 | 1.03 | | |
| Farm laborers | (N) | 38 | 55 | 17 | 110 | 1.90 |
| | (%) | 1.83 | 2.08 | 1.60 | | |
| Laborers (except farm and mine) | (N) | 92 | 80 | 32 | 204 | 3.53 |
| | (%) | 4.44 | 3.02 | 3.00 | | |
| Total | (N) | 2073 | 2646 | 1065 | 5784[b] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | | |

[b]Information not available or inappropriate on 323 graduates.

The data in Table 35 agrees generally with that presented in Table 33 regarding the education of the graduates' fathers. Graduates whose mothers had attended college tended to be in professional and technical occupations to a greater extent than did the other graduates. The graduates whose mothers had attended college also tended to be classified as craftsmen and operatives less frequently.

The data in Table 36 pertaining to the incomes of the graduates classified according to their mothers' education also coincides generally with the findings revealed in Table 34. In Table 36, only minor differences were noted in the mothers' education among the graduates receiving incomes of $3000 or less. The data reveal, however, that the graduates receiving incomes of $3001 and over tended to receive higher incomes as the education attained by their mothers increased.

Number of siblings Table 37 contains a frequency distribution of the graduates classified according to the number of siblings and the agricultural classification of their occupations. The number of siblings of the graduates at the time of the investigation was used in these analyses.

A chi-square of 37.551 was derived from the chi-square analysis of the data in Table 37. This value was significant at the one percent level.

Table 36. Primary occupational income of graduate by mother's education

| Income | | Mother's education: Eighth grade or less | One to four years high school | One or more years college | Total N | Total % |
|---|---|---|---|---|---|---|
| $3000 or less | (N) | 250 | 307 | 115 | 672 | 11.93 |
| | (%) | 12.37 | 11.90 | 11.13 | | |
| $3001 to $6000 | (N) | 1055 | 1277 | 462 | 2794 | 49.59 |
| | (%) | 52.20 | 49.50 | 44.73 | | |
| $6001 to $9000 | (N) | 495 | 748 | 316 | 1559 | 27.67 |
| | (%) | 24.49 | 28.99 | 30.59 | | |
| $9001 and over | (N) | 221 | 248 | 140 | 609 | 10.81 |
| | (%) | 10.94 | 9.61 | 13.55 | | |
| Total | (N) | 2021 | 2580 | 1033 | 5634[a] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | | |

[a]Information not available or inappropriate on 473 graduates.

Table 37. Agricultural classification of occupations by number of siblings[a]

| Number of siblings | | Agricultural classification: Farmers and farm managers | Farm laborers | Off-farm agricultural | Non-agricultural | Total N | Total % |
|---|---|---|---|---|---|---|---|
| None | (N) | 101 | 10 | 36 | 183 | 330 | 5.42 |
| | (%) | 5.72 | 8.70 | 4.54 | 5.36 | | |
| One | (N) | 377 | 19 | 125 | 603 | 1124 | 18.46 |
| | (%) | 21.33 | 16.52 | 15.76 | 17.66 | | |
| Two | (N) | 408 | 21 | 181 | 767 | 1377 | 22.61 |
| | (%) | 23.09 | 18.26 | 22.83 | 22.47 | | |
| Three | (N) | 344 | 16 | 141 | 631 | 1132 | 18.59 |
| | (%) | 19.47 | 13.91 | 17.78 | 18.48 | | |
| Four or more | (N) | 537 | 49 | 310 | 1230 | 2126 | 34.92 |
| | (%) | 30.39 | 42.61 | 39.09 | 36.03 | | |
| Total | (N) | 1767 | 115 | 793 | 3414 | 6089[b] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square value = 37.551. Table value at one percent level with 12 degrees of freedom is 26.217. Significant at one percent level.

[b]Information not available on 18 graduates.

Among the 1767 graduates who were classified as farmers and farm managers, 21.33 percent had one sibling, whereas 15.76 percent of the graduates in off-farm agricultural occupations had one sibling. Thirty and thirty-nine hundredths percent of the farmers and farm managers had four or more siblings, whereas 39.09 percent of the graduates in off-farm agricultural occupations and 36.03 percent of those in nonagricultural occupations had four or more siblings.

A frequency distribution of the number of siblings of the graduates classified according to the census classification of their occupations is presented in Table 38. The null hypothesis that there were no differences in the actual and expected frequencies of the graduates so classified was rejected. A chi-square value of 78.554, which was significant at the one percent level, was computed from the data in Table 38.

Of the graduates with only one sibling, 33.57 percent were classified as farmers and farm managers, whereas 29.65 percent of the total population were classified as farmers and farm managers. Of those graduates with four or more siblings, 25.78 percent were farmers and farm managers.

Twenty and twenty-three hundredths percent of the

Table 38. Census classification of occupations by number of siblings[a]

| Census classification | | Number of siblings: None or one | Two or three | Four or more | Total: N | % |
|---|---|---|---|---|---|---|
| Professional and technical | (N) | 265 | 496 | 332 | 1093 | 18.36 |
| | (%) | 18.61 | 20.23 | 15.94 | | |
| Farmers and farm managers | (N) | 478 | 752 | 537 | 1767 | 29.65 |
| | (%) | 33.57 | 30.67 | 25.78 | | |
| Managers and proprietors | (N) | 103 | 238 | 175 | 516 | 8.66 |
| | (%) | 7.23 | 9.70 | 8.40 | | |
| Clerical | (N) | 87 | 151 | 130 | 368 | 6.18 |
| | (%) | 6.11 | 6.16 | 6.24 | | |
| Sales | (N) | 75 | 127 | 132 | 334 | 5.60 |
| | (%) | 5.27 | 5.18 | 6.34 | | |
| Craftsmen | (N) | 189 | 333 | 353 | 875 | 14.68 |
| | (%) | 13.27 | 13.58 | 16.95 | | |
| Operatives | (N) | 130 | 215 | 241 | 586 | 9.83 |
| | (%) | 9.13 | 8.77 | 11.57 | | |

[a]Chi-square value = 78.554. Table value at one percent level with 18 degrees of freedom is 34.805. Significant at one percent level.

Table 38 (Continued)

| Census classification | | Number of siblings: None or one | Two or three | Four or more | Total: N | % |
|---|---|---|---|---|---|---|
| Service | (N) | 21 | 27 | 47 | 95 | 1.59 |
| | (%) | 1.47 | 1.10 | 2.25 | | |
| Farm laborers | (N) | 29 | 37 | 49 | 115 | 1.93 |
| | (%) | 2.04 | 1.51 | 2.35 | | |
| Laborer (except farm and mine | (N) | 47 | 76 | 87 | 210 | 3.52 |
| | (%) | 3.30 | 3.10 | 4.18 | | |
| Total | (N) | 1424 | 2452 | 2083 | 5959[b] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | | |

[b]Information not available on 148 graduates.

graduates with two or three siblings were in occupations classified as professional and technical, whereas only 15.94 percent of the graduates with four or more siblings were in occupations so classified. Table 38 also reveals that a higher percentage of the graduates with four or more siblings were in occupations classified as craftsmen, operatives and service workers as compared to the total population of graduates.

Number of siblings with a college degree The graduates were asked to indicate the number of their brothers and sisters who had received a college degree at the time of the investigation. Table 39 reveals that negligible differences existed among the graduates grouped by number of siblings who had received a college degree and the agricultural classification of their occupations.

A chi-square analysis of the data in Table 39 produced a nonsignificant chi-square value of 4.380. Although a high proportion (73.45 percent) of the graduates employed as farm laborers had no siblings with a college degree, the overall differences in the frequency distribution were nonsignificant.

The migration patterns of the graduates classified according to the number of their siblings who had received a

Table 39. Agricultural classification of occupations by number of siblings with a college degree[a]

| Siblings with a degree | | Agricultural classification: Farmers and farm managers[b] | Farm laborers[b] | Off-farm agricultural | Non-agricultural | Total N | Total % |
|---|---|---|---|---|---|---|---|
| None | (N) | 1139 | 83 | 519 | 2197 | 3938 | 64.85 |
| | (%) | 64.57 | 73.45 | 65.53 | 64.56 | | |
| One | (N) | 365 | 15 | 164 | 706 | 1250 | 20.59 |
| | (%) | 20.69 | 13.27 | 20.71 | 20.75 | | |
| Two | (N) | 115 | 4 | 59 | 242 | 420 | 6.92 |
| | (%) | 6.52 | 3.54 | 7.45 | 7.11 | | |
| Three or more | (N) | 44 | 1 | 14 | 76 | 135 | 2.22 |
| | (%) | 2.49 | 0.89 | 1.77 | 2.23 | | |
| No siblings | (N) | 101 | 10 | 36 | 182 | 329 | 5.42 |
| | (%) | 5.73 | 8.85 | 4.54 | 5.35 | | |
| Total | (N) | 1764 | 113 | 792 | 3402 | 6072[c] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square = 4.380. Table value at five percent level with eight degrees of freedom is 20.090. Non-significant differences.

[b]Farmers, farm managers and farm laborers combined to compute chi-square analysis.

[c]Information not available on 35 graduates.

college degree at the time of the investigation are presented in Table 40. A highly significant chi-square value of 70.839 was derived from these data. A total of 42.96 percent of the graduates with three or more siblings who were college graduates remained in their home communities, whereas 59.77 percent of those with no college-graduate siblings remained in their home communities.

The data in Table 40 also indicated that there was a tendency for the graduates to migrate away from their home communities but remain within Iowa as the number of siblings with college degrees increased. Also, there was strong evidence to indicate that the graduates tended to migrate beyond the borders of a state contiguous to Iowa more frequently as the number of siblings with a college degree increased.

High school education

Data pertaining to the high school education of the graduates were obtained from the records of the participating high schools. The relationships of these educational data to the occupations of the graduates are described in the following paragraphs.

Course work A tabulation was made of the semesters of course work taken by each graduate during his high school

Table 40. Migration of graduates by number of siblings with a college degree[a]

| Migration | | Siblings with a degree | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | No siblings | None | One | Two | Three or more | Total N | % |
| Same or contiguous county | (N) | 204 | 2359 | 631 | 204 | 58 | 3456 | 56.81 |
| | (%) | 62.00 | 59.77 | 50.44 | 48.45 | 42.96 | | |
| Same economic area | (N) | 10 | 172 | 66 | 21 | 5 | 274 | 4.51 |
| | (%) | 3.04 | 4.36 | 5.27 | 4.99 | 3.70 | | |
| Within Iowa | (N) | 39 | 420 | 184 | 70 | 19 | 732 | 12.03 |
| | (%) | 11.86 | 10.64 | 14.71 | 16.63 | 14.07 | | |
| Contiguous state | (N) | 33 | 392 | 150 | 49 | 20 | 644 | 10.59 |
| | (%) | 10.03 | 9.93 | 11.99 | 11.64 | 14.82 | | |
| Outside contiguous state | (N) | 43 | 604 | 220 | 77 | 33 | 977 | 16.06 |
| | (%) | 13.07 | 15.30 | 17.59 | 18.29 | 24.45 | | |
| Total | (N) | 329 | 3947 | 1251 | 421 | 135 | 6083[b] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square = 70.839. Table value at one percent level with 16 degrees of freedom is 32.000. Significant at one percent level.

[b]Information not available on 24 graduates.

career. This tabulation, which included all academic courses in which the graduate enrolled, was not restricted only to those courses passed by the graduate.

Semesters of science The information in Table 41 indicates that more graduates employed in professional and technical occupations enrolled in five or more semesters of science than was expected. The chi-square analysis of the frequency distribution of the graduates classified by the number of semesters of science and the census classification of their occupations produced a chi square of 178.966 which was significant at the one percent level.

In contrast to the graduates in the professional and technical areas, farmers, farm managers and farm laborers enrolled less extensively in science courses than was expected, as did those classified as operatives and service workers.

Table 42 contains a frequency distribution of the graduates classified according to their migration patterns and the number of semesters of science taken in high school. A chi-square analysis of these data produced a value of 65.715 which was significant at the one percent level.

Sixty and eighty-six hundredths percent of the graduates who enrolled in two or less semesters of science had remained

Table 41. Census classification of occupations by semesters c

| Semesters of science | | Census classification[b] 1 | 2 | 3 | 4 | 5 | 6 | |
|---|---|---|---|---|---|---|---|---|
| Two or less[c] | (N) | 190 | 470 | 122 | 86 | 101 | 222 | 17 |
| | (%) | 17.38 | 26.58 | 23.60 | 23.37 | 30.24 | 25.31 | 2 |
| Three or four | (N) | 426 | 881 | 245 | 186 | 145 | 419 | 28 |
| | (%) | 38.98 | 49.83 | 47.39 | 50.54 | 43.41 | 47.78 | 4 |
| Five or more | (N) | 477 | 417 | 150 | 96 | 88 | 236 | 1 |
| | (%) | 43.64 | 23.59 | 29.01 | 26.09 | 26.35 | 26.91 | 2 |
| Total | (N) | 1093 | 1768 | 517 | 368 | 334 | 877 | 5 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 1 |

[a]Chi-square value = 178.966. Table value at one percent 34.805. Significant at one percent level.

[b]Census classifications are numbered as follows: 1 = Pr farm managers; 3 = Managers and proprietors; 4 = Clerical; 5 8 = Service; 9 = Farm laborers; 10 = laborers (except farm an

[c]Includes graduates for whom data regarding high school

[d]Information not available on 141 graduates.

by semesters of high school science[a]

| classification[b] 5 | 6 | 7 | 8 | 9 | 10 | Total N | % |
|---|---|---|---|---|---|---|---|
| 01 | 222 | 174 | 28 | 24 | 56 | 1473 | 24.69 |
| 30.24 | 25.31 | 29.64 | 29.17 | 20.87 | 26.54 | | |
| 45 | 419 | 280 | 48 | 67 | 98 | 2795 | 46.85 |
| 43.41 | 47.78 | 47.70 | 50.00 | 58.26 | 46.45 | | |
| 88 | 236 | 133 | 20 | 24 | 57 | 1698 | 28.46 |
| 26.35 | 26.91 | 22.66 | 20.83 | 20.87 | 27.01 | | |
| 334 | 877 | 587 | 96 | 115 | 211 | 5966[d] | 100.00 |
| .00.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |

at one percent level with 18 degrees of freedom is

ollows: 1 = Professional and technical; 2 = Farmers and
= Clerical; 5 = Sales; 6 = Craftsmen; 7 = Operatives;
(except farm and mine).

ng high school course work were not available.

es.

Table 42. Migration of graduates by semesters of high school science[a]

| Migration | | Semesters of science: Two or less[b] | Three or four | Five or more | Total: N | % |
|---|---|---|---|---|---|---|
| Same or contiguous county | (N) | 916 | 1699 | 853 | 3468 | 56.79 |
| | (%) | 60.86 | 59.47 | 48.88 | | |
| Same economic area | (N) | 70 | 111 | 93 | 274 | 4.49 |
| | (%) | 4.65 | 3.88 | 5.33 | | |
| Within Iowa | (N) | 165 | 326 | 245 | 736 | 12.05 |
| | (%) | 10.96 | 11.41 | 14.04 | | |
| Contiguous state | (N) | 148 | 284 | 215 | 647 | 10.59 |
| | (%) | 9.84 | 9.94 | 12.32 | | |
| Outside contiguous state | (N) | 206 | 437 | 339 | 982 | 16.08 |
| | (%) | 13.69 | 15.30 | 19.43 | | |
| Total | (N) | 1505 | 2857 | 1745 | 6107 | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square value = 65.715. Table value at one percent level with eight degrees of freedom is 20.090. Significant at one percent level.

[b]Includes graduates for whom data regarding high school course work were not available.

in their home communities, whereas 23.53 percent had migrated out of Iowa. In contrast, 48.88 percent of those who enrolled in five or more semesters of science had remained in

their home communities and 31.75 percent had migrated out of Iowa.

Semesters of mathematics Table 43 contains a distribution of the graduates grouped according to the census classification of their occupations and the number of semesters of mathematics in which they enrolled while in high school. A chi square of 308.764, significant at the one percent level, was derived from these data.

A high proportion of the graduates classified in the professional and technical occupational category enrolled in five or more semesters of mathematics. The graduates who were employed as farmers, farm managers, operatives, service workers, farm laborers, and laborers (except farm and mine) tended to enroll in fewer semesters of mathematics.

The distribution of the graduates in Table 44, which pertains to the migration of the graduates classified according to the number of semesters of mathematics in which they had enrolled, corresponded closely with the data in Table 42. The chi-square value of 171.499, as derived from the actual and expected frequency distribution in Table 44, was significant at the one percent level.

Of the graduates who enrolled in five or more semesters of mathematics, 43.97 percent had remained in their home

Table 43. Census classification of occupations by semesters c

| Semesters of mathematics | | Census classificatior 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| Two or less[c] | (N) | 199 | 559 | 156 | 120 | 100 | 273 |
| | (%) | 18.21 | 31.62 | 30.17 | 32.61 | 29.94 | 31.13 |
| Three or four | (N) | 425 | 858 | 230 | 171 | 153 | 416 |
| | (%) | 38.88 | 48.53 | 44.49 | 46.47 | 45.81 | 47.43 |
| Five or more | (N) | 469 | 351 | 131 | 77 | 81 | 188 |
| | (%) | 42.91 | 19.85 | 25.34 | 20.92 | 24.25 | 21.44 |
| Total | (N) | 1093 | 1768 | 517 | 368 | 334 | 877 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

[a]Chi-square = 308.764. Table value at one percent level Significant at one percent level.

[b]Census classifications are numbered as follows: 1 = Pro and farm managers; 3 = Managers and proprietors; 4 = Clerical; Operatives; 8 = Service; 9 = Farm laborers; 10 = laborers (exc

[c]Includes graduates for whom data regarding high school c

[d]Information not available on 141 graduates.

r semesters of high school mathematics[a]

| assification[b] 5 | 6 | 7 | 8 | 9 | 10 | Total N | % |
|---|---|---|---|---|---|---|---|
| )0 | 273 | 228 | 43 | 51 | 73 | 1802 | 30.20 |
| 9.94 | 31.13 | 38.84 | 44.79 | 44.35 | 34.60 | | |
| 53 | 416 | 261 | 35 | 50 | 110 | 2709 | 45.41 |
| 45.81 | 47.43 | 44.46 | 36.46 | 43.48 | 52.13 | | |
| 31 | 188 | 98 | 18 | 14 | 28 | 1455 | 24.39 |
| 4.25 | 21.44 | 16.70 | 18.75 | 12.17 | 13.27 | | |
| 34 | 877 | 587 | 96 | 115 | 211 | 5966[d] | 100.00 |
| 0.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |

ercent level with 18 degrees of freedom is 34.805.

ows: 1 = Professional and technical; 2 = Farmers
4 = Clerical; 5 = Sales; 6 = Craftsmen; 7 =
Laborers (except farm and mine).

high school course work were not available.

Table 44. Migration of graduates by semesters of high school mathematics[a]

| Migration | | Semesters of mathematics | | | Total | |
|---|---|---|---|---|---|---|
| | | Two or less[b] | Three or four | Five or more | N | % |
| Same or contiguous county | (N) | 1209 | 1599 | 660 | 3468 | 56.79 |
| | (%) | 65.67 | 57.83 | 43.97 | | |
| Same economic area | (N) | 72 | 123 | 79 | 274 | 4.49 |
| | (%) | 3.91 | 4.45 | 5.26 | | |
| Within Iowa | (N) | 183 | 337 | 216 | 736 | 12.05 |
| | (%) | 9.94 | 12.19 | 14.39 | | |
| Contiguous state | (N) | 155 | 290 | 202 | 647 | 10.59 |
| | (%) | 8.42 | 10.49 | 13.46 | | |
| Outside contiguous state | (N) | 222 | 416 | 344 | 982 | 16.08 |
| | (%) | 12.06 | 15.04 | 22.92 | | |
| Total | (N) | 1841 | 2765 | 1501 | 6107 | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square value = 171.499. Table value at one percent level with eight degrees of freedom is 20.090. Significant at one percent level.

[b]Includes graduates for whom data regarding high school course work were not available.

communities as compared to 56.79 percent of the total population and 65.67 percent of those who had enrolled in two or less semesters. In contrast, 36.38 percent of those who had enrolled in five or more semesters of mathematics had

migrated out of Iowa, whereas 26.67 percent of the total population and 20.48 percent of those who had enrolled in two or less semesters of mathematics had migrated from their home state.

Semesters of vocational agriculture Table 45 sets forth the distribution of the graduates grouped according to the census classification of their occupations and the semesters of vocational agriculture in which they had enrolled. A highly significant chi-square value of 213.738 was derived from the analysis of these data.

An examination of the data in Table 45 revealed an inverse relationship between the percentage of the graduates classified as professional and technical and the number of semesters of vocational agriculture in which they had enrolled. Conversely, a positive relationship existed between the percentage of the graduates classified as farmers, farm laborers, and farm managers and the number of semesters of vocational agriculture.

The chi-square analysis of the data in Table 46 produced a value of 168.262 which was significant at the one percent level. These data revealed that slightly over one-half (51.89 percent) of the graduates employed in off-farm agricultural occupations had enrolled in seven or more

Table 45. Census classification of occupation by semesters of vocational agriculture[a]

| Census classification | | Semesters of vocational agriculture: None[b] | One to four | Five or six | Seven or more | Total N | Total % |
|---|---|---|---|---|---|---|---|
| Professional and technical | (N) | 212 | 266 | 207 | 408 | 1093 | 18.32 |
| | (%) | 27.32 | 24.40 | 18.12 | 13.80 | | |
| Farmers and farm managers | (N) | 160 | 257 | 301 | 1050 | 1768 | 29.63 |
| | (%) | 20.62 | 23.58 | 26.33 | 35.51 | | |
| Managers and proprietors | (N) | 81 | 85 | 111 | 240 | 517 | 8.67 |
| | (%) | 10.44 | 7.80 | 9.71 | 8.12 | | |
| Clerical | (N) | 58 | 76 | 68 | 166 | 368 | 6.17 |
| | (%) | 7.48 | 6.97 | 5.95 | 5.61 | | |
| Sales | (N) | 51 | 74 | 72 | 137 | 334 | 5.60 |
| | (%) | 6.57 | 6.79 | 6.30 | 4.63 | | |

[a]Chi-square value = 213.738. Table value at one percent level with 27 degrees of freedom is 46.963. Significant at one percent level.

[b]Includes graduates for whom data regarding high school course work were not available.

Table 45 (Continued)

| Census classification | | Semesters of vocational agriculture: None[b] | One to four | Five or six | Seven or more | Total: N | % |
|---|---|---|---|---|---|---|---|
| Craftsmen | (N) | 104 | 159 | 193 | 421 | 877 | 14.70 |
| | (%) | 13.40 | 14.59 | 16.88 | 14.24 | | |
| Operatives | (N) | 80 | 101 | 113 | 293 | 587 | 9.84 |
| | (%) | 10.31 | 9.26 | 9.89 | 9.91 | | |
| Service | (N) | 6 | 23 | 16 | 51 | 96 | 1.61 |
| | (%) | 0.77 | 2.11 | 1.40 | 1.72 | | |
| Farm laborers | (N) | 7 | 15 | 18 | 75 | 115 | 1.93 |
| | (%) | 0.90 | 1.38 | 1.57 | 2.54 | | |
| Laborers (except farm and mine) | (N) | 17 | 34 | 44 | 116 | 211 | 3.53 |
| | (%) | 2.19 | 3.12 | 3.85 | 3.92 | | |
| Total | (N) | 776 | 1090 | 1143 | 2957 | 5966[c] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |

[c]Information not available on 141 graduates.

Table 46. Agricultural classification of occupations by semesters of vocational agriculture[a]

| Semesters of vocational agriculture | | Agricultural classification: Farmers and farm managers | Farm laborers | Off-farm agricultural | Non-agricultural | Total N | Total % |
|---|---|---|---|---|---|---|---|
| None[b] | (N) | 160 | 7 | 98 | 538 | 803 | 13.17 |
| | (%) | 9.05 | 6.09 | 12.34 | 15.74 | | |
| One or two | (N) | 110 | 6 | 45 | 346 | 507 | 8.32 |
| | (%) | 6.22 | 5.22 | 5.67 | 10.12 | | |
| Three or four | (N) | 147 | 9 | 65 | 385 | 606 | 9.94 |
| | (%) | 8.31 | 7.82 | 8.19 | 11.26 | | |
| Five or six | (N) | 301 | 18 | 174 | 676 | 1169 | 19.18 |
| | (%) | 17.03 | 15.65 | 21.91 | 19.77 | | |
| Seven or more | (N) | 1050 | 75 | 412 | 1474 | 3011 | 49.39 |
| | (%) | 59.39 | 65.22 | 51.89 | 43.11 | | |
| Total | (N) | 1768 | 115 | 794 | 3419 | 6096[c] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square value = 168.262. Table value at one percent level with 12 degrees of freedom is 26.217. Significant at one percent level.

[b]Includes graduates for whom data regarding high school course work were not available.

[c]Information not available on 11 graduates.

semesters of vocational agriculture in comparison to 43.11 percent of those in nonagricultural occupations and 59.39 percent of the farmers and farm managers. Of those graduates who had enrolled in two or less semesters of vocational agriculture, 15.27 percent were employed as farmers and farm managers, 18.01 percent were in off-farm agricultural occupations and 25.86 percent were in nonagricultural occupations. Of the graduates who had enrolled in seven or more semesters of vocational agriculture, 1050 or 34.87 percent were farmers or farm managers, 412 or 13.86 percent were in off-farm agricultural occupations, and 1474 or 48.96 percent were in nonagricultural occupations.

The graduates were asked to indicate the value of vocational agriculture training in their occupations at the time of the investigation. Table 47 reveals that the graduates who were farmers, farm managers, and farm laborers indicated that vocational agriculture was of "much" value in their occupations, whereas those in nonagricultural occupations indicated that vocational agriculture was of little value to them. The mean value indicated by graduates in off-farm agricultural occupations was 3.42 which was approximately midway between "some" and "much" value scale points. Fifty-seven and thirty-two hundredths percent of all

Table 47. Agricultural classification of occupations by expressed value of vocational agriculture

| Value | | Agricultural classification: Farmers and farm managers | Farm laborers | Off-farm agricultural | Non-agricultural | Total N | Total % |
|---|---|---|---|---|---|---|---|
| None (1) | (N) | 27 | 2 | 64 | 1322 | 1415 | 27.55 |
| | (%) | 1.71 | 1.87 | 9.14 | 48.14 | | |
| Little (2) | (N) | 64 | 5 | 85 | 623 | 777 | 15.13 |
| | (%) | 4.04 | 4.67 | 12.14 | 22.69 | | |
| Some (3) | (N) | 427 | 21 | 227 | 608 | 1283 | 24.98 |
| | (%) | 26.97 | 19.63 | 32.43 | 22.14 | | |
| Much (4) | (N) | 358 | 27 | 143 | 117 | 645 | 12.56 |
| | (%) | 22.62 | 25.23 | 20.43 | 4.26 | | |
| Very much (5) | (N) | 707 | 52 | 181 | 76 | 1016 | 19.78 |
| | (%) | 44.66 | 48.60 | 25.86 | 2.77 | | |
| Total | (N) | 1583 | 107 | 700 | 2746 | 5136[a] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |
| Mean value | | 4.05 | 4.14 | 3.42 | 1.91 | 2.82 | |

[a]Total does not include those 971 graduates who did not enroll in vocational agriculture, were unemployed, were students and those for whom information was not available.

the graduates was at least of "some" value to them in their occupations.

The mean value of vocational agriculture expressed by the graduates grouped according to the census classification of their occupations is graphically presented in Figure 2. These data indicated that the farmers, farm managers, and farm laborers were the only census classifications wherein the graduates rated vocational agriculture as having been of "much" value in their occupations. The mean evaluations of the graduates classified as managers and proprietors and as operatives approached the "some value" level, whereas the mean evaluations of the graduates classified as professional and technical, craftsmen, service, and laborers (except farm and mine) approached the "of little value" category.

Table 48 contains an evaluation by the graduates of their participation in 4-H club activities. Of the farmers and farm managers who had participated in 4-H Club activities, 87.79 percent indicated that these activities had been of at least "some" value in their occupations. Nearly 69 percent of those in off-farm agricultural occupations, and 28.28 percent of those in nonagricultural occupations had received at least "some" value from their 4-H Club activities in their occupations. Of the total population of

Table 48. Expressed value of 4-H Club activities by agricultural classification of occupations

| Value | | Agricultural classification | | | | Total | |
|---|---|---|---|---|---|---|---|
| | | Farmers and farm managers | Farm laborers | Off-farm agricultural | Non-agricultural | N | % |
| None (1) | (N) | 22 | 6 | 56 | 825 | 909 | 27.66 |
| | (%) | 2.22 | 10.00 | 12.88 | 45.83 | | |
| Little (2) | (N) | 99 | 5 | 80 | 466 | 650 | 19.78 |
| | (%) | 9.99 | 8.33 | 18.39 | 25.89 | | |
| Some (3) | (N) | 340 | 16 | 151 | 379 | 886 | 26.96 |
| | (%) | 34.31 | 26.67 | 34.71 | 21.06 | | |
| Much (4) | (N) | 220 | 16 | 76 | 80 | 392 | 11.93 |
| | (%) | 22.20 | 26.67 | 17.47 | 4.44 | | |
| Very much (5) | (N) | 310 | 17 | 72 | 50 | 449 | 13.67 |
| | (%) | 31.28 | 28.33 | 16.55 | 2.78 | | |
| Total | (N) | 991 | 60 | 435 | 1800 | 3286[a] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |
| Mean value | | 3.70 | 3.55 | 3.06 | 1.92 | 2.64 | |

[a]Total does not include those 2821 graduates who did not participate in 4-H Club activities or who were unemployed, were students or for whom information was not available.

graduates who had participated in 4-H Club activities, 52.56 percent had received at least "some" value from these activities.

The migration patterns of the graduates classified according to the number of semesters of vocational agriculture in which they enrolled are depicted in Table 49. The chi-square analysis of these data produced a value of 139.608 which was significant at the one percent level.

The tendency of the graduates to remain in their home communities increased in direct relation to an increase in the number of semesters of vocational agriculture in which they enrolled. Of the graduates who had taken seven or more semesters of vocational agriculture, 63.66 percent remained in their home communities, whereas 22.48 percent migrated out of Iowa. In contrast, 46.28 percent of those who had no vocational agriculture (including those for whom data were unavailable) remained in their home communities and 32.13 percent migrated from their home state.

A comparison of the expressed need for a knowledge of agriculture in their occupations and the number of semesters of vocational agriculture in which the graduates enrolled is presented in Table 50. These data indicated that as the number of semesters of vocational agriculture increased, the

Table 49. Migration of graduates by semesters of vocational agriculture[a]

| Migration | | Semesters of vocational agriculture None[b] | One to four | Five or six | Seven or more | Total N | Total % |
|---|---|---|---|---|---|---|---|
| Same or contiguous county | (N) | 373 | 542 | 633 | 1920 | 3468 | 56.79 |
| | (%) | 46.28 | 48.61 | 54.10 | 63.66 | | |
| Same economic area | (N) | 44 | 61 | 50 | 119 | 274 | 4.49 |
| | (%) | 5.46 | 5.46 | 4.27 | 3.95 | | |
| Within Iowa | (N) | 130 | 151 | 156 | 299 | 736 | 12.05 |
| | (%) | 16.13 | 13.54 | 13.33 | 9.91 | | |
| Contiguous state | (N) | 96 | 125 | 138 | 288 | 647 | 10.59 |
| | (%) | 11.91 | 11.21 | 11.80 | 9.55 | | |
| Outside contiguous state | (N) | 163 | 236 | 193 | 390 | 982 | 16.08 |
| | (%) | 20.22 | 21.17 | 16.50 | 12.93 | | |
| Total | (N) | 806 | 1115 | 1170 | 3016 | 6107 | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square = 139.608. Table value at one percent level with 12 degrees of freedom is 26.217. Significant at one percent level.

[b]Includes graduates for whom data regarding high school course work were not available.

Table 50. Expressed need for knowledge of agriculture in occupations by semesters of vocational agriculture

| Need | | Semesters of vocational agriculture | | | | Total | |
|---|---|---|---|---|---|---|---|
| | | None[a] | One to four | Five or six | Seven or more | N | % |
| None (1) | (N) | 303 | 420 | 388 | 798 | 1909 | 32.20 |
| | (%) | 39.15 | 38.75 | 34.31 | 27.14 | | |
| Little (2) | (N) | 110 | 149 | 124 | 296 | 679 | 11.45 |
| | (%) | 14.21 | 13.74 | 10.96 | 10.07 | | |
| Some (3) | (N) | 110 | 139 | 173 | 412 | 834 | 14.07 |
| | (%) | 14.21 | 12.82 | 15.30 | 14.01 | | |
| Much (4) | (N) | 59 | 83 | 105 | 258 | 505 | 8.52 |
| | (%) | 7.62 | 7.66 | 9.28 | 8.78 | | |
| Very much (5) | (N) | 192 | 293 | 341 | 1176 | 2002 | 33.76 |
| | (%) | 24.81 | 27.03 | 30.15 | 40.00 | | |
| Total | (N) | 774 | 1084 | 1131 | 2940 | 5929[b] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |
| Mean need | | 2.65 | 2.70 | 2.90 | 3.24 | 3.00 | |

[a]Includes graduates for whom data regarding high school course work were not available.

[b]Information not available or inappropriate on 178 graduates.

graduates tended to express a greater need for a knowledge of agriculture in their occupations. It should be noted that 62.79 percent of the graduates who had enrolled in seven or more semesters of vocational agriculture expressed at least "some" need for a knowledge of agriculture and 46.44 percent of those who had not enrolled in vocational agriculture also expressed at least "some" need for a knowledge of agriculture.

Extracurricular activity participation The high school activity participation of the graduates grouped according to the census classification of their occupations is presented in Table 51. Figure 2 portrays the mean activity participation values expressed by the graduates classified according to the census classification of their occupations. The mean participation score for the population was 3.29. A mean score of 3.00 would have indicated that the average graduate participated in "some" activities in high school.

The highest mean participation score (3.69) was expressed by the graduates classified as professional and technical. Fifty-six and one-tenth percent of the graduates in this classification indicated that they had participated "much" or "very much" in high school extracurricular

Table 51. Participation in high school extracurricular a occupation

| Participation | | Census cl 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|---|
| None (1) | (N) | 8 | 91 | 17 | 9 | 13 | 5 |
| | (%) | 0.73 | 5.18 | 3.32 | 2.45 | 3.91 | |
| Little (2) | (N) | 122 | 281 | 80 | 62 | 38 | 15 |
| | (%) | 11.18 | 16.00 | 15.62 | 16.89 | 11.45 | 1 |
| Some (3) | (N) | 349 | 750 | 184 | 144 | 108 | 37 |
| | (%) | 31.99 | 42.71 | 35.94 | 39.24 | 32.53 | 4 |
| Much (4) | (N) | 332 | 445 | 139 | 98 | 97 | 19 |
| | (%) | 30.43 | 25.34 | 27.15 | 26.70 | 29.22 | 2 |
| Very much (5) | (N) | 280 | 189 | 92 | 54 | 76 | 9 |
| | (%) | 25.67 | 10.77 | 17.97 | 14.72 | 22.89 | 1 |
| Total | (N) | 1091 | 1756 | 512 | 367 | 332 | 8 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 1( |
| Mean participation | | 3.69 | 3.21 | 3.41 | 3.34 | 3.56 | |

[a]Census classifications are numbered as follows: 1 and farm managers; 3 = Managers and proprietors; 4 = Cle Operatives; 8 = Service; 9 = Farm laborers; 10 = laborer

[b]Information not available on 174 graduates.

lar activities by census classification of

| us classification[a] | | | | | | |
|---|---|---|---|---|---|---|
| 5 | 6 | 7 | 8 | 9 | 10 | Total |
| 50 | 37 | 6 | 11 | 13 | 255 | |
| 91 5.73 | 6.36 | 6.32 | 9.56 | 6.19 | 4.30 | |
| 159 | 123 | 12 | 29 | 55 | 961 | |
| 45 18.21 | 21.13 | 12.63 | 25.22 | 26.19 | 16.20 | |
| 377 | 269 | 39 | 49 | 93 | 2362 | |
| 53 43.19 | 46.22 | 41.05 | 42.61 | 44.29 | 39.81 | |
| 194 | 115 | 30 | 23 | 36 | 1509 | |
| .22 22.22 | 19.76 | 31.58 | 20.00 | 17.14 | 25.43 | |
| 93 | 38 | 8 | 3 | 13 | 846 | |
| .89 10.65 | 6.53 | 8.42 | 2.61 | 6.19 | 14.26 | |
| 873 | 583 | 95 | 115 | 210 | 5933[b] | |
| .00 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | |
| .56 3.14 | 2.99 | 3.23 | 2.81 | 2.91 | 3.29 | |

s: 1 = Professional and technical; 2 = Farmers
= Clerical; 5 = Sales; 6 = Craftsmen; 7 =
borers (except farm and mine).

activities, whereas 39.69 percent of the total population indicated this degree of participation. The graduates engaged in sales occupations had a mean participation score of 3.56 with 52.11 percent indicating that they had participated "much" or "very much" in activities.

Graduates classified as farm laborers, laborers (except farm and mine), and operatives indicated the lowest comparative degree of activity participation. Twenty-seven and forty-nine hundredths percent of the operatives, 24.78 percent of the farm laborers, and 22.38 percent of the laborers (except farm and mine) indicated that they had experienced little or no participation in activities during their high school careers.

The migration patterns of the graduates classified according to the degree of their participation in high school activities are set forth in Table 52. The data indicated that migration of the graduates away from their home communities tended to be associated with the extent of their participation in activities. Of the graduates who had not participated in activities, 67.56 percent remained in their home communities and 13.74 percent had migrated beyond a contiguous state, whereas 42.11 percent of the graduates who had participated "very much" in activities remained in their

Table 52. Migration of graduates by high school extracurricular activity participation

| Migration | | Activity participation None | Little | Some | Much | Very much | Total N | % |
|---|---|---|---|---|---|---|---|---|
| Same or contiguous county | (N) | 177 | 647 | 1435 | 822 | 363 | 3444 | 56.71 |
| | (%) | 67.56 | 65.69 | 59.49 | 52.96 | 42.11 | | |
| Same economic area | (N) | 8 | 34 | 94 | 89 | 48 | 273 | 4.50 |
| | (%) | 3.05 | 3.45 | 3.90 | 5.74 | 5.57 | | |
| Within Iowa | (N) | 26 | 93 | 274 | 200 | 142 | 735 | 12.10 |
| | (%) | 9.92 | 9.44 | 11.36 | 12.89 | 16.47 | | |
| Contiguous state | (N) | 15 | 86 | 257 | 174 | 114 | 646 | 10.64 |
| | (%) | 5.73 | 8.73 | 10.66 | 11.21 | 13.23 | | |
| Outside contiguous | (N) | 36 | 125 | 352 | 267 | 195 | 975 | 16.05 |
| | (%) | 13.74 | 12.69 | 14.59 | 17.20 | 22.62 | | |
| Total | (N) | 262 | 985 | 2412 | 1552 | 862 | 6073[a] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Information not available on 34 graduates.

home communities and 22.62 percent had migrated beyond a state contiguous to Iowa.

Quartile rank in high school graduating class Data pertaining to the graduates' rank in their high school graduating classes were obtained from the records of the participating high schools. Table 53 contains information regarding the quartile rank of the graduates grouped according to the agricultural classification of their occupations.

Nearly one-third (33.24 percent) of the graduates in this study ranked in the bottom one-fourth and 15.86 percent ranked in the top quartile of their graduating classes. Of the total population of graduates, 3289 or 55.13 percent were employed in nonagricultural occupations, as indicated in Table 10. Table 53 indicates that 61.19 percent of the total number of graduates who ranked in the top quartile and 54.85 percent of those in the bottom quartile were engaged in nonagricultural occupations.

In contrast, farmers and farm managers constituted 29.63 percent of the total population. Twenty and seventy-six hundredths percent of the top-quartile graduates and 29.82 percent of the graduates who ranked in the bottom quartile of their graduating classes were classified as farmers and farm managers. Of the 13.31 percent of the total

Table 53. Agricultural classification of occupations by quartile rank in high school graduating class[a]

| Quartile rank | | Agricultural classification: Farmers and farm managers | Farm laborers | Off-farm agricultural | Non-agricultural | Total N | Total % |
|---|---|---|---|---|---|---|---|
| Bottom one-fourth | (N) | 578 | 68 | 229 | 1063 | 1938 | 33.24 |
| | (%) | 34.26 | 62.96 | 30.25 | 32.42 | | |
| Third one-fourth | (N) | 492 | 20 | 205 | 876 | 1593 | 27.32 |
| | (%) | 29.17 | 18.52 | 27.08 | 26.72 | | |
| Second one-fourth | (N) | 425 | 15 | 161 | 774 | 1375 | 23.58 |
| | (%) | 25.19 | 13.89 | 21.27 | 23.60 | | |
| Top one-fourth | (N) | 192 | 5 | 162 | 566 | 925 | 15.86 |
| | (%) | 11.38 | 4.63 | 21.40 | 17.26 | | |
| Total | (N) | 1687 | 108 | 757 | 3279 | 5831[b] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square value = 93.416. Table value at one percent level with nine degrees of freedom is 21.666. Significant at one percent level.

[b]Information not available on 276 graduates.

population who were engaged in off-farm agricultural occupations, 162 (or 17.51 percent of the top-quartile graduates) ranked in the upper one-fourth of their graduating classes. Eleven and eighty-two hundredths percent of the bottom-quartile graduates were engaged in off-farm agricultural occupations.

An analysis of the data in Table 53 produced a chi-square value of 93.416 which was significant at the one percent level. The distribution of the farm laborers revealed that 62.96 percent had ranked in the bottom one-fourth of their graduating classes as compared to 33.24 percent of the total population. Likewise, 4.63 percent of the farm laborers ranked in the top quartile whereas 15.86 percent of the total population ranked in this position.

The analysis also revealed that 11.38 percent of the farmers and farm managers ranked in the top one-fourth of their graduating classes as compared to 21.40 percent of the graduates in off-farm agricultural occupations and 17.26 percent of the graduates in nonagricultural occupations.

Table 54 provides a further elaboration of the quartile ranking of the graduates grouped according to the census classification of their occupations. The information in Table 54 indicated that 47.57 percent of the graduates in

Table 54. Census classification of occupation by quartile rank in high school graduating class

| Census classification | | Quartile rank: Bottom one-fourth | Third one-fourth | Second one-fourth | Top one-fourth | Total N | Total % |
|---|---|---|---|---|---|---|---|
| Professional and technical | (N) | 125 | 201 | 289 | 428 | 1043 | 18.27 |
| | (%) | 6.58 | 12.84 | 21.53 | 47.57 | | |
| Farmers and farm managers | (N) | 578 | 492 | 425 | 192 | 1687 | 29.55 |
| | (%) | 30.42 | 31.42 | 31.64 | 21.33 | | |
| Managers and proprietors | (N) | 151 | 153 | 137 | 62 | 503 | 8.81 |
| | (%) | 7.95 | 9.77 | 10.20 | 6.89 | | |
| Clerical | (N) | 112 | 94 | 94 | 48 | 348 | 6.09 |
| | (%) | 5.89 | 6.00 | 7.00 | 5.33 | | |
| Sales | (N) | 93 | 112 | 76 | 38 | 319 | 5.59 |
| | (%) | 4.89 | 7.15 | 5.66 | 4.22 | | |
| Craftsmen | (N) | 343 | 257 | 164 | 79 | 843 | 14.77 |
| | (%) | 18.05 | 16.41 | 12.21 | 8.78 | | |
| Operatives | (N) | 280 | 159 | 97 | 31 | 567 | 9.93 |
| | (%) | 14.74 | 10.15 | 7.22 | 3.44 | | |
| Service | (N) | 60 | 16 | 10 | 4 | 90 | 1.58 |
| | (%) | 3.16 | 1.02 | 0.74 | 0.44 | | |

Table 54 (Continued)

| Census classification | | Quartile rank: Bottom one-fourth | Third one-fourth | Second one-fourth | Top one-fourth | Total N | Total % |
|---|---|---|---|---|---|---|---|
| Farm laborers | (N) | 68 | 20 | 15 | 5 | 108 | 1.89 |
| | (%) | 3.58 | 1.28 | 1.12 | 0.56 | | |
| Laborers (except farm and mine) | (N) | 90 | 62 | 36 | 13 | 201 | 3.52 |
| | (%) | 4.74 | 3.96 | 2.68 | 1.44 | | |
| Total | (N) | 1900 | 1566 | 1343 | 900 | 5709[a] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Information not available on 398 graduates.

the top quartile were occupied in the professional and technical classification, whereas 6.58 percent in the bottom quartile were so classified. Twenty-one and thirty-three hundredths percent of the top-quartile graduates were farmers and farm managers, whereas 30.42 percent of those in the bottom quartile were so employed.

Graduates classified as managers and proprietors, clerical, and sales personnel were distributed somewhat uniformly throughout the four quartiles. The percentage of the graduates classified as craftsmen, operatives, service, farm laborers, and laborers (except farm and mine) tended to diminish as the quartile rank increased.

The migration patterns of the graduates classified according to their quartile rankings are presented in Table 55. Of the graduates who ranked in the bottom one-fourth of their classes, 64.56 percent remained in their home communities, 78.06 percent remained in Iowa and 13.41 percent migrated beyond a state contiguous to Iowa. In contrast, 38.70 percent of the top-quartile graduates remained in their home communities, 62.81 percent remained in Iowa, and 23.89 percent migrated beyond a contiguous state. The bar graph in Figure 4 shows the relative changes in the migration

Table 55. Migration of graduate by quartile rank in high school graduating class

| Migration | | Quartile rank: Bottom one-fourth | Third one-fourth | Second one-fourth | Top one-fourth | Total N | Total % |
|---|---|---|---|---|---|---|---|
| Same or contiguous county | (N) | 1257 | 944 | 763 | 358 | 3322 | 56.90 |
| | (%) | 64.56 | 59.22 | 55.57 | 38.70 | | |
| Same economic area | (N) | 69 | 63 | 78 | 53 | 263 | 4.50 |
| | (%) | 3.54 | 3.95 | 5.68 | 5.73 | | |
| Within Iowa | (N) | 194 | 181 | 162 | 170 | 707 | 12.11 |
| | (%) | 9.96 | 11.36 | 11.80 | 18.38 | | |
| Contiguous state | (N) | 166 | 169 | 151 | 123 | 609 | 10.43 |
| | (%) | 8.53 | 10.60 | 11.00 | 13.30 | | |
| Outside contiguous state | (N) | 261 | 237 | 219 | 221 | 938 | 16.06 |
| | (%) | 13.41 | 14.87 | 15.95 | 23.89 | | |
| Total | (N) | 1947 | 1594 | 1373 | 925 | 5839[a] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Information not available on 268 graduates.

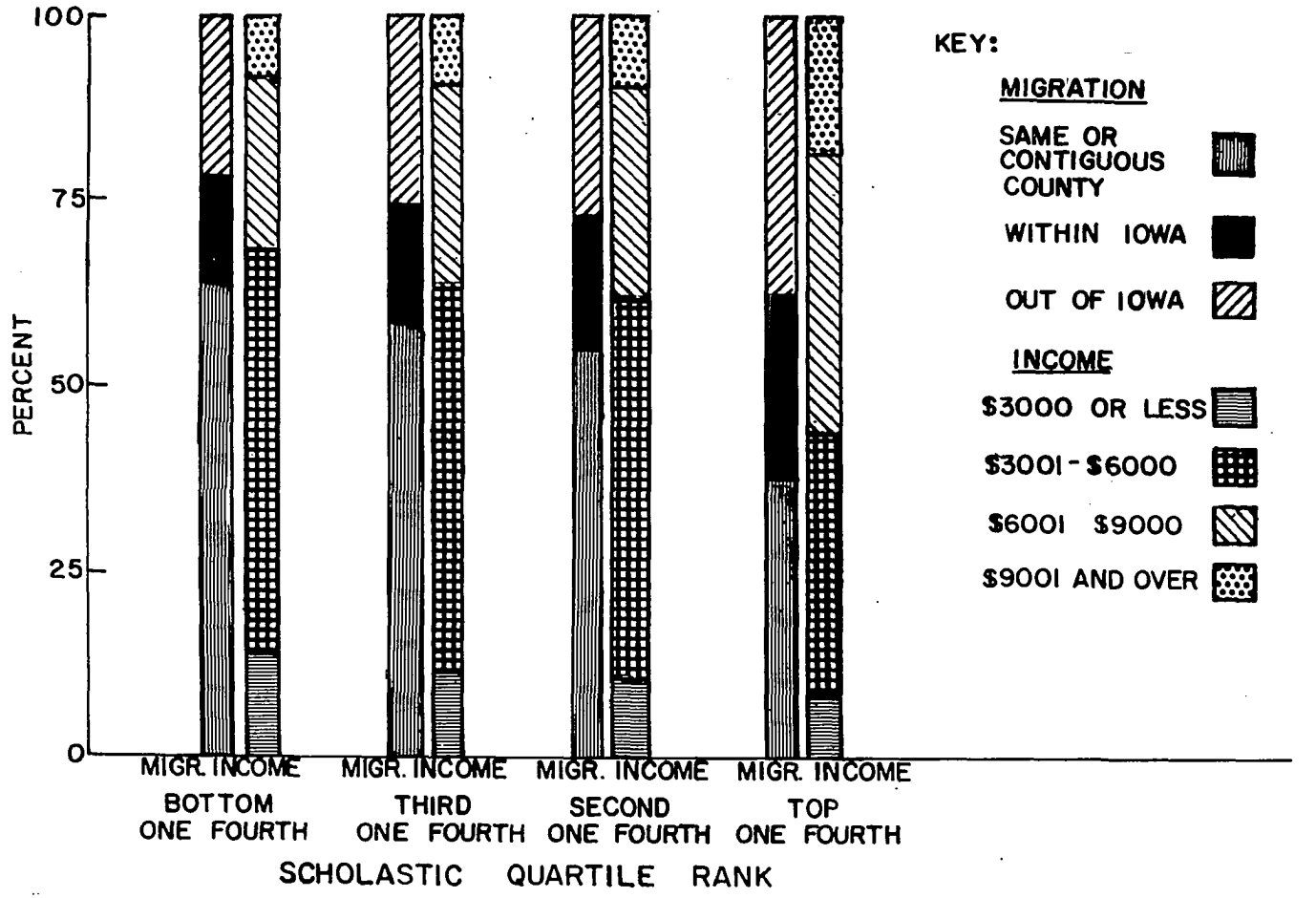


Figure 4. Migration and occupational income of graduates by quartile rank

patterns of the graduates classified according to their quartile rank.

Table 56 describes the incomes of the graduates classified according to their quartile rankings in their high school graduating classes. Figure 4 presents these data graphically.

Eleven and ninety-five hundredths percent of all of the graduates received incomes of $3000 or less, whereas 14.32 percent of those in the bottom quartile and 9.15 percent of those in the top quartile received incomes in this bracket. In contrast, 8.76 percent of the bottom-quartile graduates and 18.08 percent of the top-quartile graduates received incomes of $9001 and over. The percentages of the graduates receiving incomes of between $3001 and $9000 indicated a direct relationship between income and quartile rank.

Year of graduation The distribution of the graduates classified according to the agricultural classification of their occupations and the year of their graduation from high school is presented in Table 57. A chi-square analysis of these data indicated that highly significant differences existed among the actual and expected frequencies of the graduates so classified.

The data revealed that 22.99 percent of the farmers and

Table 56. Primary occupational income by quartile rank in high school graduating class

| Income | | Quartile rank: Bottom one-fourth | Third one-fourth | Second one-fourth | Top one-fourth | Total N | Total % |
|---|---|---|---|---|---|---|---|
| $3000 or less | (N) | 260 | 174 | 148 | 81 | 663 | 11.95 |
| | (%) | 14.32 | 11.39 | 11.20 | 9.15 | | |
| $3001 to $6000 | (N) | 981 | 798 | 672 | 315 | 2766 | 49.84 |
| | (%) | 54.02 | 52.23 | 50.87 | 35.59 | | |
| $6001 to $9000 | (N) | 416 | 412 | 371 | 329 | 1528 | 27.53 |
| | (%) | 22.90 | 26.96 | 28.09 | 37.18 | | |
| $9001 and over | (N) | 159 | 144 | 130 | 160 | 593 | 10.68 |
| | (%) | 8.76 | 9.42 | 9.84 | 18.08 | | |
| Total | (N) | 1816 | 1528 | 1321 | 885 | 5550[a] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Information not available or inappropriate on 557 graduates.

farm managers were graduated in 1950 as compared to 18.51 percent of the total population. Among the graduates employed as farm laborers, 10.53 percent were graduated in 1950 and 34.21 percent were graduated in 1954, whereas 18.51 percent and 21.91 percent of the total population had been graduated in these years respectively. Table 57 also revealed that within the nonagricultural group the percentages of the graduates from each of the years studied coincided generally with the percentages for the total population. The relative percentages of the graduates employed in off-farm agricultural occupations, however, tended to increase each year from 1950 to 1954.

The incomes of the graduates classified according to the year of their graduation from high school are portrayed in Table 58. These data indicate that 55.60 percent of the 1950 graduates were receiving incomes of $6000 or less, whereas 68.96 percent of the 1954 graduates were receiving incomes of a similar magnitude. Of the 1950 graduates, 44.40 percent were receiving incomes of $6001 and over as compared to 31.04 percent of the 1954 graduates.

Post-high school education

Information pertaining to the post-high school education of the graduates was obtained from the Form 2

Table 57. Agricultural classification of occupations by year of graduation[a]

| Year of graduation | | Agricultural classification: Farmers and farm managers | Farm laborers | Off-farm agricultural | Non-agricultural | Total N | Total % |
|---|---|---|---|---|---|---|---|
| 1950 | (N) | 405 | 12 | 122 | 584 | 1123 | 18.51 |
| | (%) | 22.99 | 10.53 | 15.48 | 17.16 | | |
| 1951 | (N) | 335 | 13 | 155 | 662 | 1165 | 19.20 |
| | (%) | 19.01 | 11.40 | 19.67 | 19.45 | | |
| 1952 | (N) | 339 | 16 | 139 | 684 | 1178 | 19.42 |
| | (%) | 19.24 | 14.04 | 17.64 | 20.10 | | |
| 1953 | (N) | 321 | 34 | 185 | 732 | 1272 | 20.96 |
| | (%) | 18.22 | 29.82 | 23.48 | 21.51 | | |
| 1954 | (N) | 362 | 39 | 187 | 741 | 1329 | 21.91 |
| | (%) | 20.54 | 34.21 | 23.73 | 21.78 | | |
| Total | (N) | 1762 | 114 | 788 | 3403 | 6067[b] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square value = 61.846. Table value at one percent level with 12 degrees of freedom is 26.217. Significant at one percent level.

[b]Information not available on 40 graduates.

Table 58. Primary occupational income by year of high school graduation

| Income | | Year of graduation 1950 | 1951 | 1952 | 1953 | 1954 | Total N | Total % |
|---|---|---|---|---|---|---|---|---|
| $3000 or less | (N) | 113 | 118 | 134 | 160 | 167 | 692 | 11.99 |
| | (%) | 10.63 | 10.78 | 11.96 | 13.19 | 13.06 | | |
| $3001 to $6000 | (N) | 478 | 497 | 521 | 647 | 715 | 2858 | 49.53 |
| | (%) | 44.97 | 45.39 | 46.52 | 53.34 | 55.90 | | |
| $6001 to $9000 | (N) | 306 | 349 | 339 | 310 | 288 | 1592 | 27.59 |
| | (%) | 28.79 | 31.87 | 30.27 | 25.56 | 22.52 | | |
| $9001 and over | (N) | 166 | 131 | 126 | 96 | 109 | 628 | 10.89 |
| | (%) | 15.61 | 11.96 | 11.25 | 7.91 | 8.52 | | |
| Total | (N) | 1063 | 1095 | 1120 | 1213 | 1279 | 5770[a] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Information not available or inappropriate on 337 graduates.

Questionnaire. The educational data regarding the graduates were limited to formal types of educational experiences. On-the-job training, correspondence courses, adult evening school training, apprentice training and other similar and less-formal types of educational programs were specifically excluded.

Type of educational institution attended The distribution of the graduates grouped according to the agricultural classification of their occupations and their matriculation in a post-high school educational institution is presented in Table 59. The chi-square analysis of these data produced a chi square of 877.641 which was statistically significant at the one percent level.

In comparison to the total population, fewer of the graduates who were farmers, farm managers, and farm laborers had attended a post-high school educational institution. Of these graduates, 13.75 percent had matriculated in an educational institution other than Iowa State University and 11.65 percent had attended Iowa State University, whereas the remaining 74.60 percent had not enrolled in a post-high school educational institution. Thirty-six and eighty-two hundredths percent of the graduates in nonagricultural occupations had not matriculated in a post-high school

Table 59. Agricultural classification of occupations by matriculation in post-high school educational institutions[a]

| Matriculation | | Agricultural classification | | | | Total | |
|---|---|---|---|---|---|---|---|
| | | Farmers and farm managers | Farm laborers | Off-farm agricultural | Non-agricultural | N | % |
| Other than Iowa State University | (N) | 243 | 14 | 185 | 1604 | 2046 | 33.58 |
| | (%) | 13.75 | 12.28 | 23.36 | 46.92 | | |
| Including Iowa State University | (N) | 206 | 10 | 223 | 556 | 995 | 16.33 |
| | (%) | 11.65 | 8.77 | 28.16 | 16.26 | | |
| Did not matriculate | (N) | 1319 | 90 | 384 | 1259 | 3052 | 50.09 |
| | (%) | 74.60 | 78.95 | 48.48 | 36.82 | | |
| Total | (N) | 1768 | 114 | 792 | 3419 | 6093[b] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square value = 877.641. Table value at one percent level with six degrees of freedom is 16.812. Significant at one percent level.

[b]Information not available on 14 graduates.

educational institution.

A total of 51.52 percent of the graduates engaged in off-farm agricultural occupations had attended a post-high school institution including 28.16 percent who had attended Iowa State University. Sixty-three and eighteen hundredths percent of the graduates in nonagricultural occupations had attended a post-high school institution, including 16.26 percent who had enrolled at Iowa State University. Nine hundred and ninety-five (16.33 percent) of the total population of high school graduates had attended Iowa State University and slightly over one-half (50.09 percent) had not enrolled in a post-high school educational institution.

Table 60 describes the type of post-high school institution attended by the graduates grouped according to the agricultural classification of their occupations. A chi-square value of 724.895, significant at the one percent level, indicated that significant differences existed in the distribution of the graduates so classified.

Twelve and twenty-two hundredths percent of the population of graduates had attended a technical, vocational or military school only, whereas 15.41 percent of the graduates in nonagricultural occupations and 7.49 percent of the graduates classified as farmers, farm laborers, and farm

Table 60. Agricultural classification of occupations by type of post-high school educational institutions attended[a]

| Type of institutions attended | | Agricultural classification: Farmers, farm managers and farm laborers | Off-farm agricultural | Non-agricultural | Total N | Total % |
|---|---|---|---|---|---|---|
| Technical, vocational or military | (N) | 141 | 77 | 527 | 745 | 12.22 |
| | (%) | 7.49 | 9.70 | 15.41 | | |
| Junior college, four-year college or combination | (N) | 294 | 307 | 1379 | 1980 | 32.48 |
| | (%) | 15.61 | 38.66 | 40.33 | | |
| Combination of technical, vocational, military, junior and/or four-year college | (N) | 38 | 24 | 247 | 309 | 5.07 |
| | (%) | 2.02 | 3.02 | 7.23 | | |
| None[b] | (N) | 1410 | 386 | 1266 | 3062 | 50.23 |
| | (%) | 74.88 | 48.62 | 37.03 | | |
| Total | (N) | 1883 | 794 | 3419 | 6096[c] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | | |

[a]Chi-square = 724.895. Table value at one percent level with six degrees of freedom is 16.812. Significant at one percent level.

[b]Includes graduates for whom data regarding type of post-high school attended were not available.

[c]Information not available on 11 graduates.

managers had been enrolled in post-high school educational institutions of this nature. Of the farmers, farm laborers, and farm managers, 15.61 percent had attended a junior college or a four-year college or university (or a combination of both), whereas 40.33 percent of the graduates engaged in nonagricultural occupations had attended post-high school educational institutions of this type.

Highest certificate or degree attained Information regarding the educational attainment of the graduates classified according to the census definition of their occupations is presented in Table 61. These data indicated, as was expected, that a high percentage of the graduates engaged in the professional and technical areas attained at least a bachelor's degree. Specifically, 55.38 percent of these graduates attained a bachelor's degree and an additional 22.55 percent attained at least a master's degree. The data in Table 61 also revealed that 23.91 percent of the graduates classified as managers and proprietors had received bachelor degrees as had 27.16 percent of the graduates classified as sales workers. A total of 5.32 percent of the farmers and farm managers had been awarded bachelor degrees. Four and forty-seven hundredths percent of the professional and technical group had received two-year

Table 61. Census classification of occupations by highes

| Highest certificate or degree attained | | Census classification[a] 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|---|
| None | (N) | 60 | 170 | 83 | 58 | 55 | 103 |
| | (%) | 5.71 | 10.05 | 17.26 | 17.16 | 17.57 | 12 |
| License or equivalent | (N) | 71 | 92 | 42 | 55 | 26 | 172 |
| | (%) | 6.75 | 5.44 | 8.73 | 16.27 | 8.31 | 21 |
| Two-year certificate or equivalent | (N) | 47 | 19 | 8 | 21 | 10 | 13 |
| | (%) | 4.47 | 1.13 | 1.66 | 6.21 | 3.19 | 1 |
| Bachelor's degree | (N) | 582 | 90 | 115 | 59 | 85 | 45 |
| | (%) | 55.38 | 5.32 | 23.91 | 17.46 | 27.16 | 5 |
| Master's degree or higher | (N) | 237 | 1 | 5 | 0 | 3 | 7 |
| | (%) | 22.55 | 0.06 | 1.04 | 0.00 | 0.96 | 0 |
| Did not attend[b] | (N) | 54 | 1319 | 228 | 145 | 134 | 455 |
| | (%) | 5.14 | 78.00 | 47.40 | 42.90 | 42.81 | 57 |
| Total | (N) | 1051 | 1691 | 481 | 338 | 313 | 795 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100 |

[a]Census classifications are numbered as follows: 1 and farm managers; 3 = Managers and proprietors; 4 = Cle Operatives; 8 = Service; 9 = Farm laborers; 10 = laborer

[b]Includes those enrolled at time of investigation.

[c]Information not available on 493 graduates.

ıs by highest certificate or degree attained by graduates

| ssification[a] 5 | 6 | 7 | 8 | 9 | 10 | Total N | % |
|---|---|---|---|---|---|---|---|
| 55 | 103 | 67 | 6 | 6 | 21 | 629 | 11.20 |
| 6 17.57 | 12.96 | 12.12 | 6.75 | 5.71 | 10.61 | | |
| 26 | 172 | 60 | 24 | 2 | 16 | 560 | 9.98 |
| 7 8.31 | 21.64 | 10.85 | 26.97 | 1.91 | 8.08 | | |
| 10 | 13 | 6 | 4 | 1 | 3 | 132 | 2.35 |
| 1 3.19 | 1.63 | 1.08 | 4.49 | 0.95 | 1.52 | | |
| 85 | 45 | 3 | 4 | 6 | 1 | 990 | 17.63 |
| 6 27.16 | 5.66 | 0.54 | 4.49 | 5.71 | 0.50 | | |
| 3 | 7 | 0 | 0 | 0 | 0 | 253 | 4.51 |
| )0 0.96 | 0.88 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 134 | 455 | 417 | 51 | 90 | 157 | 3050 | 54.33 |
| )0 42.81 | 57.23 | 75.41 | 57.30 | 85.72 | 79.29 | | |
| 313 | 795 | 553 | 89 | 105 | 198 | 5614[c] | 100.00 |
| )0 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |

follows: 1 = Professional and technical; 2 = Farmers
ɔrs; 4 = Clerical; 5 = Sales; 6 = Craftsmen; 7 =
L0 = laborers (except farm and mine).

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certificates or the equivalence thereof as had 6.21 percent of the graduates employed in the clerical classification. Of the clerical workers, 16.27 percent had received a license or its equivalence as had 21.64 percent of the craftsmen and 26.97 percent of the service workers.

The incomes of the graduates classified according to the highest post-high school certificate or degree attained are depicted in Table 62. A majority of the graduates (53.90 percent) who had not attended a post-high school educational institution were receiving incomes of between $3001 and $6000 as were those who had attended a post-high school institution but had earned at the most, a license or its equivalence. A higher proportion (39.03 percent) of the latter group, however, were earning incomes of $6001 and over.

In general, the data in Table 62 indicated that a direct relationship existed between income received and highest certificate or degree attained by the graduates. Of the graduates who had received a license or its equivalence, 60.97 percent had earned $6000 or less in incomes and 7.98 percent were receiving incomes of $9001 and over. In contrast, 29.08 percent of the graduates who had received master degrees or higher were earning incomes of $6000 or

Table 62. Primary occupational income by highest certificate or degree attained by graduates

| Income | | Highest certificate or degree attained: Did not attend[a] | License or equivalent or none | Two-year certificate or equivalent | Bachelor's degree | Master's degree or higher | Total N | Total % |
|---|---|---|---|---|---|---|---|---|
| $3000 or less | (N) | 469 | 97 | 14 | 64 | 26 | 670 | 12.28 |
| | (%) | 16.10 | 8.32 | 10.37 | 6.45 | 10.36 | | |
| $3001 to $6000 | (N) | 1570 | 614 | 60 | 397 | 47 | 2688 | 49.25 |
| | (%) | 53.90 | 52.65 | 44.44 | 39.98 | 18.72 | | |
| $6001 to $9000 | (N) | 576 | 362 | 49 | 414 | 106 | 1507 | 27.61 |
| | (%) | 19.77 | 31.05 | 36.30 | 41.69 | 42.23 | | |
| $9001 and over | (N) | 298 | 93 | 12 | 118 | 72 | 593 | 10.86 |
| | (%) | 10.23 | 7.98 | 8.89 | 11.88 | 28.69 | | |
| Total | (N) | 2913 | 1166 | 135 | 993 | 251 | 5458[b] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Includes those enrolled at time of investigation.

[b]Information not available or inappropriate on 649 graduates.

less and 28.69 percent were earning incomes of $9001 and over.

Curricula The various curricula pursued by the graduates who attended a post-high school institution were grouped into seven basic areas. Table 63 describes the distribution of the graduates grouped according to the curricula pursued and the agricultural classification of their occupations. These data reveal that 10.01 percent of the farmers and farm managers had enrolled in a post-high school agricultural curriculum. Twenty-six and forty-six hundredths percent of the graduates employed in off-farm agricultural occupations had enrolled in agricultural curricula and 8.04 percent had received training in "business" curricula. Of the 2870 Iowa male farm-reared graduates included in this study who had attended a post-high school educational institution, 550 or 19.16 percent had enrolled in an agricultural curriculum.

The distribution of the graduates classified according to the census definition of their occupations and the curricula in which they had been enrolled is presented in Table 64. Of the graduates who pursued an agricultural curriculum, 32.41 percent were classified as professional and technical, 32.58 percent were farmers and farm managers,

Table 63. Agricultural classification of occupations by post-high school curricula[a]

| Curriculum | | Agricultural classification: Farmers and farm managers | Farm laborers | Off-farm agricultural | Non-agricultural | Total N | Total % |
|---|---|---|---|---|---|---|---|
| Agriculture | (N) | 173 | 9 | 204 | 164 | 550 | 9.29 |
| | (%) | 10.01 | 7.96 | 26.46 | 4.96 | | |
| Business | (N) | 24 | 0 | 62 | 290 | 376 | 6.35 |
| | (%) | 1.39 | 0.00 | 8.04 | 8.76 | | |
| Engineering | (N) | 9 | 0 | 9 | 247 | 265 | 4.47 |
| | (%) | 0.52 | 0.00 | 1.17 | 7.47 | | |
| Basic sciences | (N) | 18 | 0 | 12 | 226 | 256 | 4.32 |
| | (%) | 1.04 | 0.00 | 1.56 | 6.83 | | |
| Social sciences | (N) | 26 | 1 | 16 | 331 | 374 | 6.32 |
| | (%) | 1.50 | 0.89 | 2.07 | 10.00 | | |
| Fine or | (N) | 24 | 2 | 14 | 232 | 272 | 4.59 |
| Liberal Arts | (%) | 1.39 | 1.77 | 1.82 | 7.01 | | |
| Other (including | (N) | 136 | 11 | 70 | 560 | 777 | 13.12 |
| trades) | (%) | 7.86 | 9.73 | 9.08 | 16.92 | | |
| Did not attend | (N) | 1319 | 90 | 384 | 1259 | 3052 | 51.54 |
| | (%) | 76.29 | 79.65 | 49.80 | 38.05 | | |
| Total | (N) | 1729 | 113 | 771 | 3309 | 5922[a] | 100.00 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | | |

[a]Information not available on 185 graduates.

Table 64. Census classification of occupations by post-high school curric

| Census classification | | Curricula[a] 1 | 2 | 3 | 4 | 5 | 6 | |
|---|---|---|---|---|---|---|---|---|
| Professional and technical | (N) | 172 | 89 | 157 | 151 | 235 | 115 | 10 |
| | (%) | 32.41 | 24.18 | 61.57 | 65.37 | 65.46 | 44.57 | 1 |
| Farmers and farm managers | (N) | 173 | 24 | 9 | 18 | 26 | 24 | 1 |
| | (%) | 32.58 | 6.52 | 3.53 | 7.79 | 7.24 | 9.30 | 1 |
| Managers and proprietors | (N) | 53 | 84 | 19 | 18 | 20 | 23 | 4 |
| | (%) | 9.98 | 22.83 | 7.45 | 7.79 | 5.57 | 8.91 | |
| Clerical | (N) | 24 | 76 | 9 | 4 | 27 | 26 | 4 |
| | (%) | 4.52 | 20.65 | 3.53 | 1.73 | 7.52 | 10.08 | |
| Sales | (N) | 52 | 49 | 13 | 13 | 13 | 18 | 1 |
| | (%) | 9.79 | 13.31 | 5.10 | 5.63 | 3.62 | 6.98 | |
| Craftsmen | (N) | 34 | 17 | 38 | 22 | 19 | 24 | 2 |
| | (%) | 6.40 | 4.62 | 14.90 | 9.52 | 5.29 | 9.30 | |
| Operatives | (N) | 6 | 23 | 9 | 5 | 13 | 10 | |
| | (%) | 1.13 | 6.25 | 3.53 | 2.17 | 3.62 | 3.88 | |
| Service | (N) | 2 | 3 | 1 | 0 | 2 | 6 | |
| | (%) | 0.37 | 0.82 | 0.39 | 0.00 | 0.56 | 2.33 | |
| Farm laborers | (N) | 9 | 0 | 0 | 0 | 1 | 2 | |
| | (%) | 1.69 | 0.00 | 0.00 | 0.00 | 0.28 | 0.77 | |
| Laborers (except farm and mine) | (N) | 6 | 3 | 0 | 0 | 3 | 10 | |
| | (%) | 1.13 | 0.82 | 0.00 | 0.00 | 0.84 | 3.88 | |
| Total | (N) | 531 | 368 | 255 | 231 | 359 | 258 | 7 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 1 |

[a]Curricula are numbered as follows: 1 = Agriculture; 2 = Business; Sciences; 5 = Social Sciences; 6 = Fine and Liberal Arts; 7 = Other curri

[b]Information not available on 311 graduates.

by post-high school curricula

| ricula[a] 4 | 5 | 6 | 7 | Did not attend | Total N | % |
|---|---|---|---|---|---|---|
| 151 | 235 | 115 | 107 | 49 | 1075 | 18.55 |
| 65.37 | 65.46 | 44.57 | 14.08 | 1.62 | | |
| 18 | 26 | 24 | 136 | 1319 | 1729 | 29.83 |
| 7.79 | 7.24 | 9.30 | 17.89 | 43.47 | | |
| 18 | 20 | 23 | 45 | 228 | 490 | 8.46 |
| 7.79 | 5.57 | 8.91 | 5.92 | 7.51 | | |
| 4 | 27 | 26 | 43 | 143 | 352 | 6.07 |
| 1.73 | 7.52 | 10.08 | 5.66 | 4.71 | | |
| 13 | 13 | 18 | 28 | 134 | 320 | 5.52 |
| 5.63 | 3.62 | 6.98 | 3.68 | 4.42 | | |
| 22 | 19 | 24 | 243 | 451 | 848 | 14.63 |
| 9.52 | 5.29 | 9.30 | 31.97 | 14.86 | | |
| 5 | 13 | 10 | 92 | 414 | 572 | 9.87 |
| 2.17 | 3.62 | 3.88 | 12.11 | 13.65 | | |
| 0 | 2 | 6 | 26 | 50 | 90 | 1.55 |
| 0.00 | 0.56 | 2.33 | 3.42 | 1.65 | | |
| 0 | 1 | 2 | 11 | 90 | 113 | 1.95 |
| 0.00 | 0.28 | 0.77 | 1.45 | 2.97 | | |
| 0 | 3 | 10 | 29 | 156 | 207 | 3.57 |
| 0.00 | 0.84 | 3.88 | 3.82 | 5.14 | | |
| 231 | 359 | 258 | 760 | 3034 | 5796[b] | 100.00 |
| 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |

Agriculture; 2 = Business; 3 = Engineering; 4 = Basic
beral Arts; 7 = Other curricula (including trades).

es.

9.98 percent were managers and proprietors, 9.79 percent were classified as sales workers, and the remainder were distributed throughout the other census classifications.

Of the graduates who studied "business" curricula, 24.18 percent were classified as professional and technical, 22.83 percent were managers and proprietors, 20.65 percent were in clerical occupations, 13.31 percent were in sales, 6.52 percent were farmers and farm managers, and the remainder were distributed among the other census classifications. Sixty-one and fifty-seven hundredths percent of those who enrolled in the engineering curricula were classified as professional and technical and 14.90 percent were craftsmen.

Slightly over 65 percent of the graduates who had been enrolled in the basic and social sciences were classified as professional and technical, whereas 44.57 percent of the graduates who had studied the fine and liberal arts were so classified. The remainder of the graduates classified according to the curriculum studied were generally distributed throughout the various census classifications. It should be noted, however, that 31.97 percent of the graduates who had enrolled in the "other curriculum" category, which included the trades and other specific and generally terminal courses,

were classified as craftsmen.

The curricula studied in post-high school educational institutions by the graduates employed in off-farm agricultural occupations are presented in Table 65. These data revealed that 25.17 percent of these graduates had enrolled in an agricultural curriculum, 8.98 had enrolled in "other" curricula, 6.87 percent had studied a business curriculum, and 52.99 percent had not attended a post-high school educational institution. Of the graduates engaged in agricultural education services, 78.43 percent had enrolled in an agricultural curriculum as had 63.79 percent of those employed in the farm management area. Likewise, 52.50 percent of the graduates classified in the soil and/or fertilizer areas and 34.27 percent of the graduates in the livestock industry had enrolled in an agricultural curriculum. In contrast, 3.08 percent of the graduates in the dairy industry, 4.17 percent of the graduates in the poultry industry, and 6.42 percent of those in the farm machinery industry had enrolled in an agricultural curriculum.

Table 65. Off-farm agricultural occupations by post-high school curr

| Curriculum | | Off-farm agricultural occupation | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 |
| Agriculture | (N) | 2 | 37 | 21 | 9 | 1 | 61 |
| | (%) | 3.08 | 19.17 | 52.50 | 6.42 | 4.17 | 34.27 |
| Business | (N) | 6 | 10 | 3 | 19 | 3 | 8 |
| | (%) | 9.23 | 5.19 | 7.50 | 13.57 | 12.49 | 4.49 |
| Engineering | (N) | 0 | 3 | 1 | 3 | 0 | 0 |
| | (%) | 0.00 | 1.55 | 2.50 | 2.14 | 0.00 | 0.00 |
| Basic science | (N) | 0 | 3 | 0 | 1 | 0 | 4 |
| | (%) | 0.00 | 1.55 | 0.00 | 0.72 | 0.00 | 2.25 |
| Social science | (N) | 2 | 1 | 0 | 3 | 0 | 4 |
| | (%) | 3.08 | 0.52 | 0.00 | 2.14 | 0.00 | 2.25 |
| Fine and liberal arts | (N) | 0 | 2 | 0 | 1 | 1 | 5 |
| | (%) | 0.00 | 1.04 | 0.00 | 0.72 | 4.17 | 2.81 |
| Other (including trades) | (N) | 11 | 21 | 0 | 19 | 1 | 12 |
| | (%) | 16.92 | 10.88 | 0.00 | 13.57 | 4.17 | 6.74 |
| Did not attend | (N) | 44 | 116 | 15 | 85 | 18 | 84 |
| | (%) | 67.69 | 60.10 | 37.50 | 60.72 | 75.00 | 47.19 |
| Total | (N) | 65 | 193 | 40 | 140 | 24 | 178 |
| | (%) | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 1 |

[a]Off-farm agricultural occupations are numbered as follows: 1 = 3 = Soil and/or fertilizer; 4 = Farm machinery; 5 = Poultry; 6 = Live (including farm managers); 8 = Ag. educational services; 9 = Other (i

[b]Information not available on 38 graduates.

st-high school curricula

| cultural occupations[a] 5 | 6 | 7 | 8 | 9 | Total N | % |
|---|---|---|---|---|---|---|
| 1 | 61 | 37 | 40 | 19 | 227 | 25.17 |
| .42 4.17 | 34.27 | 63.79 | 78.43 | 12.42 | | |
| 3 | 8 | 5 | 1 | 7 | 62 | 6.87 |
| .57 12.49 | 4.49 | 8.62 | 1.96 | 4.58 | | |
| 0 | 0 | 0 | 2 | 0 | 9 | 1.00 |
| .14 0.00 | 0.00 | 0.00 | 3.92 | 0.00 | | |
| 0 | 4 | 1 | 0 | 3 | 12 | 1.33 |
| .72 0.00 | 2.25 | 1.72 | 0.00 | 1.96 | | |
| 0 | 4 | 3 | 3 | 1 | 17 | 1.89 |
| .14 0.00 | 2.25 | 5.18 | 5.88 | 0.65 | | |
| 1 | 5 | 1 | 4 | 2 | 16 | 1.77 |
| .72 4.17 | 2.81 | 1.72 | 7.85 | 1.31 | | |
| 1 | 12 | 2 | 1 | 14 | 81 | 8.98 |
| .57 4.17 | 6.74 | 3.45 | 1.96 | 9.15 | | |
| 18 | 84 | 9 | 0 | 107 | 478 | 52.99 |
| .72 75.00 | 47.19 | 15.52 | 0.00 | 69.93 | | |
| 24 | 178 | 58 | 51 | 153 | 902[b] | 100.00 |
| .00 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | | |

ed as follows: 1 = Dairy; 2 = Feed and/or seed;
= Poultry; 6 = Livestock; 7 = Farm management
vices; 9 = Other (including farm laborers).

## Correlation Analyses

Intercorrelations of selected variables were computed to determine the relationships, if any, that existed. Only those graduates from whom all pertinent data had been obtained were included in the analyses. Furthermore, only the original population of graduates (N = 5722) was analyzed by this statistical technique.

A table containing values of r at the five and one percent levels of significance was described by Wert (46, p. 424). This table, which provided the levels of significance of r in accordance with the N of the sample or population, had an upper limit N of 1000. An r of 0.081 or higher with an N of 1000 differed from zero at the one percent level of significance, and an r of 0.062 differed from zero at the five percent level. These values were used as the limits of significance for r in the correlation analyses that included an N of 1000 or more in this investigation.

### All graduates

Table 66 describes the variables analyzed in the intercorrelational matrix presented in Table 67. The means and standard deviations were derived from the data available for all graduates.

Table 66. Means and standard deviations of selected variables relating to occupations of graduates (N = 4654)

| Variable number | Description | Range of coded values | Mean | SD |
|---|---|---|---|---|
| 1 | Year of graduation[a] | 0 - 4 | 2.10 | 1.42 |
| 2 | Quartile rank[b] | 1 - 4 | 2.38 | 1.08 |
| 3 | Semesters, mathematics | 0 - 8 | 3.88 | 1.57 |
| 4 | Semesters, science | 0 - 8 | 4.12 | 1.65 |
| 5 | Semesters, vocational agriculture | 0 - 8 | 5.69 | 2.84 |
| 6 | Semesters, industrial arts | 0 - 8 | 1.77 | 2.17 |
| 7 | Need for knowledge of agriculture[c] | 1 - 5 | 2.94 | 1.72 |
| 8 | Extracurricular activity participation[c] | 1 - 5 | 3.34 | 1.03 |
| 9 | Number of siblings | 0 - 9 | 3.12 | 2.16 |
| 10 | Education of father[d] | 0 - 9 | 1.71 | 1.34 |
| 11 | Education of mother[d] | 0 - 9 | 2.52 | 1.51 |
| 12 | Occupational prestige scale value[e] | 0 - 99 | 68.07 | 8.49 |

[a]Year of graduation coded as follows: 0 = 1950; 1 = 1951; 2 = 1952; 3 = 1953; 4 = 1954.

[b]Quartile rank coded as follows: 1 = bottom quartile; 2 = third quartile; 3 = second quartile; 4 = top quartile.

[c]Scale values coded as follows: 1 = none; 2 = little; 3 = some; 4 = much; 5 = very much.

[d]Education of father and mother coded by highest educational level attained as follows: 0 = less than eighth grade; 1 = eighth grade; 2 = one to three years of high school; 3 = four years of high school . . . 9 = doctor's degree or equivalent.

[e]Original and interpolated North-Hatt occupational prestige scale values assigned.

Table 66 (Continued)

| Variable number | Description | Range of coded values | Mean | SD |
|---|---|---|---|---|
| 13 | Number different kinds of occupations | 0 - 9 | 2.83 | 1.29 |
| 14 | Occupational income[f] | 0 - 9 | 3.46 | 1.78 |
| 15 | Vocational agriculture enrollment by graduates[g] | 0 - 1 | 0.83 | 0.37 |
| 16 | Post-high school education[h] | 0 - 1 | 0.53 | 0.50 |

[f]Primary occupational income coded in increments of $1500 as follows: 0 = less than $1500; 1 = $1500 - $3000; 2 = $3001 - $4500 . . . 9 = $13,501 and over.

[g]Vocational agriculture enrollment by graduates coded as follows: 0 = no enrollment; 1 = enrolled in vocational agriculture.

[h]Enrollment in post-high school educational institution by graduates coded as follows: 0 = no attendance; 1 = attendance by graduates.

An occupational prestige scale, as developed by Cecil C. North and Paul Hatt and later supplemented by others, was employed as a measure of the prestige of each graduate's primary occupation. The scale values for the 90 occupations in the original North-Hatt scale were described by Wilson and Kolb (47). Interpolated values for an expanded list of occupations were obtained from the Department of Economics and Sociology at Iowa State University.

The information in Table 66 indicated that the mean educational level attained by the mothers of the graduates (2.52) exceeded that attained by the fathers (1.71). Also, 83 percent of the graduates had enrolled in vocational agriculture, and each had taken a mean of 5.69 semesters of vocational agriculture. Fifty-three percent of the graduates had extended their formal education beyond high school.

A correlation matrix of selected variables relating to the occupations of the graduates appears in Table 67. Of the 120 intercorrelations, 60 were significant at the one percent level ($r = 0.081$) and 18 were significant at the five percent level ($r = 0.062$). Nineteen of the correlations exceeded an r of 0.200.

The coefficient of correlation between quartile rank and semesters of mathematics yielded a .357 value of r. The correlations between quartile rank and occupational prestige scale value (.335) and between quartile rank and enrollment in post-high school educational institutions (.336) also were highly significant. In addition, quartile rank was positively correlated with extracurricular activity participation (.261).

Semesters of mathematics were positively correlated with enrollment in post-high school educational institutions

(.245) and occupational prestige scale values (.228). Negative correlations were found between semesters of mathematics and semesters of vocational agriculture (-.243) and semesters of industrial arts (-.207).

The analysis also revealed a negative relationship between semesters of science and semesters of vocational agriculture (-.287) and semesters of science and semesters of industrial arts (-.212). Semesters of vocational agriculture were negatively correlated with semesters of industrial arts (-.380).

The correlation matrix in Table 67 also revealed several other correlations that equalled or exceeded a value of .200. Expressed need for a knowledge of agriculture in the occupations of the graduates was negatively correlated with enrollment in post-high school educational institutions by the graduates (-.247). Positive correlations existed between extracurricular activity participation and occupational prestige scale values (.216) and between activity participation and enrollment in post-high school educational institutions (.238). Other positive correlations included: education of father and education of mother, .393; occupational prestige scale value and occupational income, .285; and occupational prestige scale value and enrollment in post-high

Table 67. Product-moment correlation matrix of selecte
ates (5 percent level of significance = .062

| Variables[a] | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1.000 | | | | | | | |
| 2 | .003 | 1.00 | | | | | | |
| 3 | -.049 | .357 | 1.000 | | | | | |
| 4 | .008 | .193 | .181 | 1.000 | | | | |
| 5 | .075 | -.122 | -.243 | -.287 | 1.000 | | | |
| 6 | -.065 | -.101 | -.207 | -.212 | -.380 | 1.000 | | |
| 7 | -.020 | -.024 | -.070 | -.061 | .172 | -.067 | 1.000 | |
| 8 | .032 | .261 | .190 | .115 | -.077 | -.166 | .027 | 1.000 |
| 9 | .004 | -.083 | -.063 | -.036 | -.006 | .036 | -.041 | -.064 |
| 10 | .025 | .121 | .146 | .074 | -.027 | -.049 | .008 | .142 |
| 11 | .036 | .135 | .143 | .083 | -.025 | -.058 | -.003 | .169 |
| 12 | -.054 | .335 | .228 | .163 | -.096 | -.100 | .003 | .216 |
| 13 | -.099 | -.097 | -.063 | -.080 | .004 | .074 | -.109 | -.070 |
| 14 | -.113 | .128 | .098 | .061 | -.052 | -.028 | -.051 | .154 |
| 15 | .025 | -.179 | -.171 | -.189 | .597 | -.201 | .157 | -.079 |
| 16 | .021 | .336 | .245 | .177 | -.147 | -.071 | -.247 | .238 |

[a]Selected variables are numbered as indicated in
tion; 2 = quartile rank; 3 = semesters, mathematics; 4
tional agriculture; 6 = semesters, industrial arts; 7
extracurricular activity participation; 9 = number of
education of mother; 12 = occupational prestige scale
tions; 14 = occupational income; 15 = vocational agric
school education.

lected variables relating to occupations of gradu-
.062; 1 percent level of significance = .081)

| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|

(N = 4654)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 000 | | | | | | | | |
| 064 | 1.000 | | | | | | | |
| 142 | -.129 | 1.000 | | | | | | |
| 169 | -.173 | .393 | 1.000 | | | | | |
| 216 | -.055 | .101 | .116 | 1.000 | | | | |
| 070 | .055 | -.074 | -.042 | -.153 | 1.000 | | | |
| 154 | .016 | .043 | .061 | .285 | -.066 | 1.000 | | |
| 079 | .024 | -.010 | -.019 | -.070 | .029 | .009 | 1.000 | |
| 238 | -.071 | .141 | .170 | .364 | .018 | .125 | -.149 | 1.000 |

in Table 66 and as follows: 1 = year of gradua-
s; 4 = semesters, science; 5 = semesters, voca-
; 7 = need for knowledge of agriculture; 8 =
of siblings; 10 = education of father; 11 =
ale value; 13 = number different kinds of occupa-
griculture enrollment by graduates; 16 = post-high

school educational institution, .364.

Additional correlation matrices were computed for selected segments of the population of graduates. These matrices are described in the following paragraphs.

Graduates who had enrolled in vocational agriculture

Selected variables pertaining to the graduates who had been enrolled in vocational agriculture are described in Table 68. The variables analyzed in Table 68 were similar to those described in Table 66 except for the deletion of the variables pertaining to year of graduation, number of different kinds of occupations and enrollment by the graduates in vocational agriculture. The variables added to Table 68 included semesters of social science, semesters of business education, and expressed value of vocational agriculture.

The data recorded in Table 68 indicated that the graduates who had enrolled in vocational agriculture expressed a mean value of 2.83 for the vocational agriculture training that they had received in high school. In contrast to the total population, they had a slightly lower mean number of semesters of science, mean occupational prestige scale value and mean enrollment in post-high school educational institutions. The graduates who had taken vocational agriculture had a slightly higher mean number of semesters of vocational

Table 68. Means and standard deviations of selected variables relating to the occupations of graduates who had enrolled in vocational agriculture (N = 3981)

| Variable number | Description | Range of coded values | Mean | SD |
|---|---|---|---|---|
| 1 | Quartile rank[a] | 0 - 4 | 2.33 | 1.07 |
| 2 | Semesters, social science | 0 - 8 | 6.28 | 1.22 |
| 3 | Semesters, mathematics | 0 - 8 | 3.77 | 1.53 |
| 4 | Semesters, science | 0 - 8 | 3.98 | 1.60 |
| 5 | Semesters, business education | 0 - 8 | 2.53 | 1.55 |
| 6 | Semesters, vocational agriculture | 0 - 8 | 6.43 | 2.16 |
| 7 | Semesters, industrial arts | 0 - 8 | 1.56 | 2.07 |
| 8 | Need for knowledge of agriculture[b] | 1 - 5 | 3.06 | 1.69 |
| 9 | Value of vocational agriculture[b] | 1 - 5 | 2.83 | 1.46 |
| 10 | Extracurricular activity participation[b] | 1 - 5 | 3.31 | 1.02 |
| 11 | Number of siblings | 0 - 9 | 3.13 | 2.17 |
| 12 | Education of father[c] | 0 - 9 | 1.71 | 1.33 |
| 13 | Education of mother[c] | 0 - 9 | 2.51 | 1.51 |

[a]Quartile rank coded as follows: 1 = bottom quartile; 2 = third quartile; 3 = second quartile; 4 = top quartile.

[b]Scale values coded as follows: 1 = none; 2 = little; 3 = some; 4 = much; 5 = very much.

[c]Education of father and mother coded by highest educational level attained as follows: 0 = less than eighth grade; 1 = eighth grade; 2 = one to three years of high school; 3 = four years of high school . . . 9 = doctor's degree or equivalent.

Table 68 (Continued)

| Variable number | Description | Range of coded values | Mean | SD |
|---|---|---|---|---|
| 14 | Occupational prestige scale value[d] | 0 - 99 | 67.88 | 7.54 |
| 15 | Occupational income[e] | 0 - 9 | 3.47 | 1.76 |
| 16 | Post-high school education[f] | 0 - 1 | 0.51 | 0.50 |

[d]Original and interpolated North-Hatt occupational prestige scale values assigned.

[e]Primary occupational income coded in increments of $1500 as follows: 0 = less than $1500; 1 = $1500 - $3000; 2 = $3001 - $4500 . . . 9 = $13,501 and over.

[f]Enrollment in post-high school educational institution by graduates coded as follows: 0 = no attendance; 1 = attendance by graduates.

agriculture and a higher mean need for a knowledge of agriculture in their occupations.

The correlation matrix appearing in Table 69 contained generally similar correlation values in comparison to those presented in Table 67. Fifty-eight of the 120 correlations were significant at the one percent level and 13 were significant at the five percent level. Twelve of the correlations pertaining to quartile rank, 12 pertaining to semesters of mathematics, 9 pertaining to semesters of industrial arts,

Table 69. Product-moment correlation matrix of selec
graduates who had enrolled in vocational a
.062; 1 percent level of significance = .C

| Variables[a] | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1.000 | | | | | | | |
| 2 | -.100 | 1.000 | | | | | | |
| 3 | .332 | -.131 | 1.000 | | | | | |
| 4 | .169 | -.125 | .127 | 1.000 | | | | |
| 5 | -.087 | -.007 | -.147 | -.133 | 1.000 | | | |
| 6 | -.037 | -.033 | -.155 | -.188 | -.197 | 1.000 | | |
| 7 | -.141 | -.069 | -.265 | -.300 | -.134 | -.285 | 1.000 | |
| 8 | .005 | -.005 | -.051 | -.048 | .003 | .161 | -.058 | 1.000 |
| 9 | -.005 | -.010 | -.053 | -.064 | -.011 | .252 | -.092 | .797 |
| 10 | .263 | -.002 | .176 | .107 | -.010 | -.040 | -.179 | .034 |
| 11 | -.087 | .005 | -.058 | -.023 | .028 | -.015 | .034 | -.044 |
| 12 | .117 | -.030 | .137 | .071 | -.067 | -.025 | -.046 | .007 |
| 13 | .138 | -.021 | .134 | .080 | -.060 | -.029 | -.055 | -.006 |
| 14 | .363 | -.065 | .221 | .141 | -.072 | -.066 | -.110 | -.005 |
| 15 | .129 | -.019 | .088 | .055 | -.041 | -.037 | -.033 | -.080 |
| 16 | .330 | -.053 | .231 | .149 | -.047 | -.109 | -.094 | -.222 |

[a]Selected variables are numbered as indicated in
2 = semesters, social science; 3 = semesters, mathema
business education; 6 = semesters, vocational agricu
for knowledge of agriculture; 9 = value of vocationa
participation; 11 = number of siblings; 12 = educati
occupational prestige scale value; 15 = occupational

of selected variables relating to the occupations of
ational agriculture (5 percent level of significance =
ance = .081)

| 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | (N = 3981) | | | | | |
| 000 | | | | | | | | | |
| 058 | 1.000 | | | | | | | | |
| 092 | .797 | 1.000 | | | | | | | |
| 179 | .034 | .066 | 1.000 | | | | | | |
| 034 | -.044 | -.049 | -.066 | 1.000 | | | | | |
| 046 | .007 | .001 | .134 | -.120 | 1.000 | | | | |
| 055 | -.006 | -.015 | .165 | -.170 | .392 | 1.000 | | | |
| 110 | -.005 | -.011 | .227 | -.069 | .097 | .125 | 1.000 | | |
| 033 | -.080 | -.060 | .154 | .015 | .022 | .043 | .312 | 1.000 | |
| 094 | -.222 | -.210 | .240 | -.064 | .138 | .173 | .378 | .130 | 1.000 |

icated in Table 68 and as follows: 1 = quartile rank;
, mathematics; 4 = semesters, science; 5 = semesters,
1 agriculture; 7 = semesters, industrial arts; 8 = need
ocational agriculture; 10 = extracurricular activity
education of father; 13 = education of mother; 14 =
pational income; 16 = post-high school education.

9 pertaining to semesters of science, and 9 pertaining to extracurricular activity participation were significant at the one percent level.

Two correlation values involving the expressed value of vocational agriculture were significant at the five percent level. The correlation between the value of vocational agriculture and semesters of science was -.064, and the correlation between value of vocational agriculture and extracurricular activity participation was .066.

Value of vocational agriculture was correlated with other variables as follows: need for knowledge of agriculture, .797; semesters of vocational agriculture, .252; enrollment by graduates in post-high school educational institutions, -.210; and semesters of industrial arts, -.092. These correlations were significantly different from zero at the one percent level.

Graduates who had participated in 4-H Club activities

The means and standard deviations of selected variables relating to the occupations of graduates who had participated in 4-H Club activities are presented in Table 70. In contrast with the total population of graduates as described in Table 66, the graduates who had participated in 4-H Club activities tended to have a slightly higher mean quartile rank, number

Table 70. Means and standard deviations of selected variables relating to the occupations of graduates who had participated in 4-H Club activities (N = 2590)

| Variable number | Description | Range of coded values | Mean | SD |
|---|---|---|---|---|
| 1 | Quartile rank[a] | 1 - 4 | 2.45 | 1.08 |
| 2 | Semesters, mathematics | 0 - 8 | 3.95 | 1.57 |
| 3 | Semesters, science | 0 - 8 | 4.12 | 1.66 |
| 4 | Semesters, English | 0 - 8 | 7.00 | 1.06 |
| 5 | Semesters, vocational agriculture | 0 - 8 | 5.87 | 2.75 |
| 6 | Semesters, industrial arts | 0 - 8 | 1.67 | 2.12 |
| 7 | Need for knowledge of agriculture[b] | 1 - 5 | 3.04 | 1.69 |
| 8 | Value of 4-H Club activities[b] | 1 - 5 | 2.64 | 1.35 |
| 9 | Extracurricular activity participation[b] | 1 - 5 | 3.48 | 0.99 |
| 10 | Number of siblings | 0 - 9 | 2.99 | 2.07 |
| 11 | Education of father[c] | 0 - 9 | 1.90 | 1.39 |
| 12 | Education of mother[c] | 0 - 9 | 2.76 | 1.53 |
| 13 | Occupational prestige scale value[d] | 0 - 99 | 68.71 | 7.68 |

[a]Quartile rank coded as follows: 1 = bottom quartile; 2 = third quartile; 3 = second quartile; 4 = top quartile.

[b]Scale values coded as follows: 1 = none; 2 = little; 3 = some; 4 = much; 5 = very much.

[c]Education of father and mother coded by highest educational level attained as follows: 0 = less than eighth grade; 1 = eighth grade; 2 = one to three years of high school; 3 = four years of high school . . . 9 = doctor's degree or equivalent.

[d]Original and interpolated North-Hatt occupational prestige scale values assigned.

Table 70 (Continued)

| Variable number | Description | Range of coded values | Mean | SD |
|---|---|---|---|---|
| 14 | Occupational income[e] | 0 - 9 | 3.55 | 1.76 |
| 15 | Vocational agriculture enrollment by graduates[f] | 0 - 1 | 0.87 | 0.34 |
| 16 | Post-high school education[g] | 0 - 1 | 0.58 | 0.49 |

[e]Primary occupational income coded in increments of $1500 as follows: 0 = less than $1500; 1 = $1500 - $3000; 2 = $3001 - $4500 . . . 9 = $13,501 and over.

[f]Vocational agriculture enrollment by graduates coded as follows: 0 = no enrollment; 1 = enrolled in vocational agriculture.

[g]Enrollment in post-high school educational institution by graduates coded as follows: 0 = no attendance; 1 = attendance by graduates.

of semesters of vocational agriculture, need for knowledge of agriculture, education of father and mother, and extracurricular activity participation. Eighty-seven percent of the graduates had enrolled in vocational agriculture as compared to 83 percent of the total population. Likewise, 58 percent had enrolled in a post-high school educational institution as compared to 53 percent of the total population.

The correlations presented in Table 71 are of similar magnitude to the correlations computed for the total

Table 71. Product-moment correlation matrix of sel
graduates who had participated in 4-H Cl
.062; 1 percent level of significance =

| Variables[a] | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1.000 | | | | | | | |
| 2 | .382 | 1.000 | | | | | | |
| 3 | .194 | .179 | 1.000 | | | | | |
| 4 | .036 | .103 | .083 | 1.000 | | | | |
| 5 | -.121 | -.230 | -.288 | -.092 | 1.000 | | | |
| 6 | -.116 | -.231 | -.237 | -.161 | -.342 | 1.000 | | |
| 7 | -.013 | -.042 | -.052 | -.004 | .181 | -.059 | 1.000 | |
| 8 | -.027 | -.024 | -.056 | -.010 | .155 | -.081 | .701 | 1.0 |
| 9 | .259 | .173 | .140 | .116 | -.105 | -.177 | .032 | .0 |
| 10 | -.065 | -.077 | -.043 | .009 | -.025 | .048 | -.063 | -.0 |
| 11 | .120 | .128 | .067 | .005 | -.024 | -.047 | .032 | .0 |
| 12 | .144 | .137 | .093 | .003 | -.049 | -.053 | -.007 | .0 |
| 13 | .396 | .237 | .173 | .063 | -.128 | -.109 | -.042 | .0 |
| 14 | .134 | .083 | .080 | .012 | -.057 | -.024 | -.086 | -.0 |
| 15 | -.197 | -.175 | -.190 | -.021 | .596 | -.149 | .053 | .0 |
| 16 | .336 | .241 | .185 | .089 | -.161 | -.082 | -.215 | -.1 |

[a]Selected variables were numbered as indicated
2 = semesters, mathematics; 3 = semesters, science;
agriculture; 6 = semesters, industrial arts; 7 = ne
Club activities; 9 = extracurricular activity parti
of father; 12 = education of mother; 13 = occupatio
income; 15 = vocational agriculture enrollment by g

selected variables relating to the occupations of
H Club activities (5 percent level of significance =
e = .081)

| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|

(N = 2590)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1.000 | | | | | | | | |
| .092 | 1.000 | | | | | | | |
| -.059 | -.032 | 1.000 | | | | | | |
| .045 | .094 | -.098 | 1.000 | | | | | |
| .007 | .147 | -.149 | .379 | 1.000 | | | | |
| .008 | .231 | -.045 | .093 | .127 | 1.000 | | | |
| -.041 | .146 | .023 | .028 | .071 | .317 | 1.000 | | |
| .036 | -.125 | .020 | -.022 | -.041 | -.142 | -.056 | 1.000 | |
| -.145 | .219 | -.061 | .119 | .176 | .403 | .144 | -.133 | 1.000 |

ated in Table 70 and as follows: 1 = quartile rank;
nce; 4 = semesters, English; 5 = semesters, vocational
= need for knowledge of agriculture; 8 = value of 4-H
articipation; 10 = number of siblings; 11 = education
ational prestige scale value; 14 = occupational
by graduates; 16 = post-high school education.

population. Of the 120 correlations appearing in the matrix, 69 were significant at the one percent level and seven were significant at the five percent level.

Five of the coefficients of correlation involving the graduates' expressed value of their 4-H Club activities were significant at the one percent level. Value of 4-H Club activities was highly correlated with need for knowledge of agriculture (.701). Positive correlations between value of 4-H Club activities and semesters of vocational agriculture (.155) and extracurricular activities (.092) were also obtained. Negative correlations existed between value of 4-H Club activities and enrollment in post-high school educational institutions (-.145) and between value of 4-H Club activities and semesters of industrial arts (-.081).

Graduates not self-employed

The means and standard deviations of selected variables relating to the occupations of other than self-employed graduates are set forth in Table 72. Only those graduates who expressed a job-satisfaction scale value on the Form 2 Questionnaire were included in this analysis. The job-satisfaction scaling device was prepared and described by Froehlich and Wolins (16).

The data in Table 72 indicated that only minor

Table 72. Means and standard deviations of selected variables relating to occupations of graduates not self-employed (N = 2994)

| Variable number | Description | Range of coded values | Mean | SD |
|---|---|---|---|---|
| 1 | Quartile rank[a] | 1 - 4 | 2.43 | 1.10 |
| 2 | Semesters, mathematics | 0 - 8 | 3.96 | 1.60 |
| 3 | Semesters, science | 0 - 8 | 4.18 | 1.67 |
| 4 | Semesters, business education | 0 - 8 | 2.65 | 1.66 |
| 5 | Semesters, vocational agriculture | 0 - 8 | 5.45 | 2.91 |
| 6 | Semesters, industrial arts | 0 - 8 | 1.83 | 2.20 |
| 7 | Need for knowledge of agriculture[b] | 1 - 5 | 2.22 | 1.42 |
| 8 | Extracurricular activity participation[b] | 1 - 5 | 3.38 | 1.03 |
| 9 | Number of siblings | 0 - 9 | 3.22 | 2.18 |
| 10 | Education of father[c] | 0 - 9 | 1.73 | 1.35 |
| 11 | Education of mother[c] | 0 - 9 | 2.54 | 1.54 |
| 12 | Occupational prestige scale value[d] | 0 - 99 | 68.04 | 8.86 |

[a]Quartile rank coded as follows: 1 = bottom quartile; 2 = third quartile; 3 = second quartile; 4 = top quartile.

[b]Scale values coded as follows: 1 = none; 2 = little; 3 = some; 4 = much; 5 = very much.

[c]Education of father and mother coded by highest educational level attained as follows: 0 = less than eighth grade; 1 = eighth grade; 2 = one to three years of high school; 3 = four years of high school . . . 9 = doctor's degree or equivalent.

[d]Original and interpolated North-Hatt occupational prestige scale values assigned.

Table 72 (Continued)

| Variable number | Description | Range of coded values | Mean | SD |
|---|---|---|---|---|
| 13 | Occupational income[e] | 0 - 9 | 3.51 | 1.31 |
| 14 | Vocational agriculture enrollment by graduates[f] | 0 - 1 | 0.84 | 0.37 |
| 15 | Post-high school education[g] | 0 - 1 | 0.64 | 0.48 |
| 16 | Job-satisfaction scale value[h] | 8 - 40 | 28.97 | 6.14 |

[e]Primary occupational income coded in increments of $1500 as follows: 0 = less than $1500; 1 = $1500 - $3000; 2 = $3001 - $4500 . . . 9 = $13,501 and over.

[f]Vocational agriculture enrollment by graduates coded as follows: 0 = no enrollment; 1 = enrolled in vocational agriculture.

[g]Enrollment in post-high school educational institution by graduates coded as follows: 0 = no attendance; 1 = attendance by graduates.

[h]Scale value obtained from Froehlich and Wolins (16). A scale value of eight was the lowest possible job-satisfaction score and a value of 40 was maximum.

differences existed between the variables that were common to both the "employed" graduates and the total population of graduates. The "employed" graduates tended to have a lower mean number of semesters of vocational agriculture and a lower mean need for a knowledge of agriculture. Also, a higher mean number of these graduates tended to enroll in a

post-high school educational institution.

The product-moment correlation matrix, which appears in Table 73, produced a total of 74 correlations that differed significantly from zero at the one percent level and 12 correlations that were significantly different at the five percent level of significance. Thirteen of the correlations involving quartile rank were significant at the one percent level. The correlation between quartile rank and occupational prestige scale value produced an r of .433.

Six significant correlations were derived between job-satisfaction scale values and other variables. Job-satisfaction was positively correlated with occupational income (.220), occupational prestige scale value (.215), extracurricular activity participation (.151), need for knowledge of agriculture (.149), quartile rank (.122), and enrollment in post-high school educational institution by the graduates (.115).

The correlation analysis in Table 73 also revealed that a positive relationship existed between occupational income and quartile rank (.257) and between occupational prestige scale value and income (.444). The correlation between occupational prestige scale value and enrollment in a post-high school educational institution was .500.

Table 73. Product-moment correlation matrix of selec not self-employed (5 percent level of sign nificance = .081).

| Variables[a] | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| 1 | 1.000 | | | | | | | |
| 2 | .399 | 1.000 | | | | | | |
| 3 | .210 | .200 | 1.000 | | | | | |
| 4 | -.071 | -.129 | -.117 | 1.000 | | | | |
| 5 | -.127 | -.230 | -.272 | -.267 | 1.000 | | | |
| 6 | -.125 | -.229 | -.225 | -.087 | -.358 | 1.000 | | |
| 7 | .018 | -.023 | -.053 | -.013 | .126 | -.058 | 1.000 | |
| 8 | .252 | .185 | .111 | .013 | -.077 | -.181 | .083 | 1.000 |
| 9 | -.092 | -.086 | -.064 | .038 | .009 | .039 | -.002 | -.063 |
| 10 | .117 | .149 | .061 | -.069 | -.019 | -.048 | .033 | .141 |
| 11 | .139 | .153 | .092 | -.079 | -.024 | -.067 | .016 | .171 |
| 12 | .433 | .280 | .202 | -.054 | -.151 | -.089 | -.055 | .270 |
| 13 | .257 | .188 | .098 | -.049 | -.099 | -.017 | -.168 | .193 |
| 14 | -.190 | -.157 | -.179 | -.151 | .631 | -.211 | .065 | -.079 |
| 15 | .357 | .261 | .183 | -.043 | -.119 | -.100 | -.032 | .251 |
| 16 | .122 | .077 | .023 | -.026 | -.010 | -.047 | .149 | .151 |

[a]Selected variables are numbered as indicated ir
2 = semesters, mathematics; 3 = semesters, science; 4
vocational agriculture; 6 = semesters, industrial art
extracurricular activity participation; 9 = number of
education of mother; 12 = occupational prestige scale
tional agriculture enrollment by graduates; 15 = post
scale value.

f selected variables relating to occupations of graduates
of significance = .062; 1 percent level of sig-

| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|

(N = 2994)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| )0 | | | | | | | | |
| 13 | 1.000 | | | | | | | |
| 12 | -.063 | 1.000 | | | | | | |
| 13 | .141 | -.127 | 1.000 | | | | | |
| .6 | .171 | -.153 | .384 | 1.000 | | | | |
| 15 | .270 | -.066 | .117 | .139 | 1.000 | | | |
| 18 | .193 | .004 | .065 | .111 | .444 | 1.000 | | |
| 15 | -.079 | .028 | -.011 | -.007 | -.150 | -.087 | 1.000 | |
| 12 | .251 | -.095 | .134 | .144 | .500 | .246 | -.116 | 1.000 |
| 19 | .151 | .000 | .024 | .031 | .215 | .220 | -.021 | .115 |

cated in Table 72 and as follows: 1 = quartile rank;
ience; 4 = semesters, business education; 5 = semesters,
rial arts; 7 = need for knowledge of agriculture; 8 =
mber of siblings; 10 = education of father; 11 =
ge scale value; 13 = occupational income; 14 = voca-
5 = post-high school education; 16 = job-satisfaction

Graduates engaged in farming

Table 74 contains the means and standard deviations of selected variables relating to the graduates who were engaged in farming at the time of the investigation. In contrast to the total population of graduates, the mean quartile rank, the number of siblings, and the income of the graduates in farming tended to be lower. Their need for a knowledge of agriculture and their enrollment in vocational agriculture, however, were higher than the means recorded for the total population.

The product-moment correlation matrix of selected variables relating to the graduates engaged in farming appears in Table 75. The table values of r required for significance with an N of 657 were .077 at the five percent level and .102 at the one percent level. Nine of the correlations were significant at the one percent level and eight were significant at the five percent level.

Within this group of farm operators, participation in extracurricular activities was correlated negatively with the size of the graduating class (-.141) and positively with quartile rank (.227). Extracurricular activity participation also was correlated at the five percent level of significance with the need for a knowledge of agriculture

Table 74. Means and standard deviations of selected variables relating to graduates engaged in farming (N = 657)

| Variable number | Description | Range of coded values | Mean | SD |
|---|---|---|---|---|
| 1 | Size of graduating class | 0 - 999 | 54.19 | 30.09 |
| 2 | Quartile rank[a] | 1 - 4 | 2.24 | 1.03 |
| 3 | Need for knowledge of agriculture[b] | 1 - 5 | 4.78 | 0.55 |
| 4 | Extracurricular activity participation[b] | 1 - 5 | 3.22 | 1.00 |
| 5 | Level of living index of home[c] | 1 - 6 | 3.96 | 1.22 |
| 6 | Number of siblings | 0 - 9 | 3.02 | 1.96 |
| 7 | Size of home farm[d] | 0 - 9 | 3.63 | 1.79 |

[a]Quartile rank coded as follows: 1 = bottom quartile; 2 = third quartile; 3 = second quartile; 4 = top quartile.

[b]Scale values coded as follows: 1 = none; 2 = little; 3 = some; 4 = much; 5 = very much.

[c]Determined from Jehlik (25) wherein scale is graduated from one to six with one equalling a low index and six equalling a high index.

[d]Size of home farm coded in increments of 80 acres as follows: 0 = none; 1 = 1 - 80 acres; 2 = 81 - 160 acres; 3 = 161 - 240 acres; 4 = 241 - 320 acres . . . 9 = 641 or more acres.

Table 74 (Continued)

| Variable number | Description | Range of coded value | Mean | SD |
|---|---|---|---|---|
| 8 | Acres in farm operated by graduate[e] | 0 - 9 | 2.96 | 1.89 |
| 9 | Occupational income[f] | 0 - 9 | 3.17 | 2.25 |
| 10 | Vocational agriculture enrollment by graduates[g] | 0 - 1 | 0.92 | 0.27 |

[e]Acres in farm operated by graduate coded in increments of 80 acres as follows: 0 = 1 - 80 acres; 1 = 81 - 160 acres; 2 = 161 - 240 acres; 3 = 241 - 320 acres . . . 9 = 721 or more acres.

[f]Primary occupational income coded in increments of $1500 as follows: 0 = less than $1500; 1 = $1500 - $3000; 2 = $3001 - $4500 . . . 9 = $13,501 and over.

[g]Vocational agriculture enrollment by graduates coded as follows: 0 = no enrollment; 1 = enrolled in vocational agriculture.

(.091), level of living index of home at the time of graduation from high school (.093), and occupational income (.084).

The size of the graduating classes tended to be correlated positively with quartile rank (.078) and negatively with the level of living indices of the graduates homes (-.190). Quartile rank was correlated positively with the need for a knowledge of agriculture (.119) at the one percent level and negatively with occupational income (-.084) at the

five percent level of significance.

The level of living indices of the graduates' homes at the time of their graduation from high school were correlated negatively at the one percent level with the size of their home farm (-.163) and with the number of acres operated by the graduates (-.122). In contrast, the level of living index was correlated positively with occupational income (.123) and extracurricular activity participation (.093).

The correlation between the size of the home farm and the number of acres operated by the graduate was highly significant (.440). Likewise, the correlation between occupational income for the farmers and the size of their home farm (.112) was significant also at the one percent level.

## Major Findings

Subject to the limitations and assumptions set forth in this study, the following are the major findings:

(1) The locations of the graduates' homes on the day of their graduation from high school were related to their migration and the census and agricultural classifications of their occupations at the time of the study. Differences were noted in the occupations of the graduates classified according to the Iowa economic area in which their high schools were

Table 75. Product-moment correlation matrix of selected variables relating to graduates engaged in farming (5 percent level of significance = .077; 1% level of significance = .102)

| Variables[a] | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.000 | | | | | | (N = 657) | | | |
| 2 | .078* | 1.000 | | | | | | | | |
| 3 | -.030 | .119** | 1.000 | | | | | | | |
| 4 | -.141** | .227** | .091* | 1.000 | | | | | | |
| 5 | -.190** | -.029 | -.004 | .093* | 1.000 | | | | | |
| 6 | -.028 | -.062 | -.050 | -.024 | -.066 | 1.000 | | | | |
| 7 | .049 | .054 | .074 | .032 | -.163** | .081* | 1.000 | | | |
| 8 | .050 | .067 | .084* | .067 | -.122** | .008 | .440** | 1.000 | | |
| 9 | -.027 | -.084* | .035 | .084* | .123** | .026 | .112** | .079* | 1.000 | |
| 10 | .038 | -.037 | .063 | .000 | .031 | .000 | .012 | .069 | .008 | 1.000 |

[a]Selected variables are numbered as indicated in Table 74 and as follows: 1 = size of high school graduating class; 2 = quartile rank; 3 = need for knowledge of agriculture; 4 = extracurricular activity participation; 5 = level of living index of home; 6 = number of siblings; 7 = size of home farm; 8 = acres in farm operated by graduate; 9 = occupational income; 10 = vocational agriculture enrollment by graduates.

*5 percent level of significance.

**1 percent level of significance.

located and according to the level of living indices of their homes. Proximity to a city with a population of 10,000 or more persons was not related to the occupations of the graduates.

(2) The size of the home farms and the farming status of the fathers of the graduates were related to the agricultural classification occupations of the graduates. The graduates whose fathers operated the larger farms as owner-renters or as owners more frequently were engaged in farming or farm management. Also, the size of the home farm was positively correlated with the number of acres operated and income received by the graduates.

(3) The education of the graduates' mothers and fathers was related to the census classification of the occupations of the graduates. The number of siblings with a college degree, however, was not related to the classification of the graduates' occupations, but was related to the migration of the graduates. Graduates with a higher total number of siblings tended to enter occupations other than farming and farm management.

(4) The semesters of high school science and mathematics taken by the graduates were related to the census classification of their occupations and their migration resulting

therefrom. Semesters of mathematics and science also were positively correlated with occupational prestige scale values and occupational income.

(5) Semesters of vocational agriculture taken by the graduates were related to the census and agricultural classifications of the occupations of the graduates. Also, there were relationships between the semesters of vocational agriculture and the migration of the graduates and their expressed need for a knowledge of agriculture in their occupations. Semesters of vocational agriculture were negatively correlated with the occupational prestige scale values of the occupations.

(6) Graduates who participated extensively in extracurricular activities tended to migrate more extensively from their home communities and to be employed in the professional and technical, sales, and managers and proprietors census classifications of occupations. Extracurricular activity participation was positively correlated with occupational prestige scale value, occupational income, and job-satisfaction scale value.

(7) The scholastic rank of the graduates was related to the agricultural and census classification of their occupations. Also, scholastic rank was related to the migration, income, occupational prestige, and job-satisfaction scale values.

(8) The agricultural classification of the occupations of the graduates was related to their year of graduation from high school. A negative correlation existed between recency of graduation and occupational income.

(9) Matriculation in a post-high school educational institution was positively correlated with occupational income, prestige, and job satisfaction. Graduates employed in occupations other than farming, farm management, and farm laboring matriculated more frequently in a post-high school educational institution classified as a junior or four-year college. A positive relationship existed between the highest certificate or degree attained by the graduates and their occupational income.

(10) A majority of the graduates employed as farmers, farm managers and in off-farm agricultural occupations who enrolled in post-high school educational institutions pursued an agricultural curriculum. Approximately one-third of those who pursued an agricultural curriculum were farmers and farm managers at the time of the study.

(11) Graduates engaged in farming and employed as farm managers and laborers tended to migrate away from their home communities less extensively than did those engaged in off-farm agricultural and nonagricultural occupations.

(12) As a group, the graduates employed in off-farm agricultural occupations had a need for a knowledge of agriculture in their occupations.

(13) A lesser need for a knowledge of agriculture was associated with higher occupational incomes received by the graduates. Also, higher occupational incomes were associated with more extensive migration by the graduates.

# DISCUSSION

The primary objective of this study was to investigate the occupational status of Iowa male high school graduates of a decade ago. The data collected from the participating high schools and from the graduates of these high schools indicated that important differences existed among the graduates with regard to their home and educational backgrounds and their occupational status.

The findings of this study should be of interest and assistance to those concerned with the education of Iowa farm youth. Vocational agriculture instructors and leaders, curriculum planners, guidance counselors, and all educators should be aware of the findings reported herein, especially the relationships of educational factors to the occupational status of the graduates.

According to the agricultural classification of the occupations of the graduates, 29.63 percent were farmers and farm managers, 13.31 percent were employed in off-farm agricultural occupations, 1.93 percent were farm laborers and 55.13 percent were engaged in nonagricultural occupations. The Iowa census data for 1960 (39) indicated that 21.9 percent of all employed Iowa males were classified as farmers

and farm managers. One would expect to find a higher proportion of farm-reared graduates engaged in farming, however, as compared to the total population of Iowa males.

In a recent study, Eggenberger (13) found that 28.4 percent of the former high school graduates from West Texas were farm operators and 15.7 percent were engaged in off-farm agricultural occupations. Newton's findings (31) in 1961 revealed that 38.04 percent of the 1940 - 1955 graduates from the Newton High School at Newton, Iowa, were engaged in farming and 17.39 percent were in off-farm agricultural occupations. Over 37 percent of the graduates in the study conducted by Weed (44) were engaged in farming and off-farm agricultural occupations, and Wilson's study (48) of 1950 - 1955 graduates from eastern Washington State indicated that 30.5 percent of the graduates were farming or ranching and 19.2 percent were employed in off-farm agricultural occupations and as farm laborers.

Although these studies did not employ comparable definitions and time periods, they tend to support the findings reported herein and suggest that approximately 10 to 20 percent of the farm-reared high school graduates of the past 10 to 20 years have entered off-farm agricultural occupations, 25 to 35 percent have become farmers, farm managers and farm

laborers, and the remaining graduates have been employed in nonagricultural occupations.

Jakubauskas (24) has forecast that manufacturing employment will exceed agricultural employment by 1970 and will supply twice as many jobs to the labor force in comparison with agricultural and other extractive and primary industries. The findings in this study indicated that a higher percentage of the 1954 graduates were engaged in both off-farm agricultural occupations and nonagricultural occupations as compared to the 1950 graduates.

One might conclude from these findings that the graduates entered nonfarm occupations in increasing numbers from 1950 to 1954 as the opportunities in farming diminished and the demand for workers in nonfarm industries increased. An alternative conclusion would be that entry of the graduates into farming was delayed pending completion of military obligations and formal education and accumulation of needed resources. The latter conclusion would seem to be warranted although evidence to support this theory is beyond the scope of this study. Certainly, the number of farm operators in Iowa has been declining steadily for the past 10 to 15 years. Likewise, Aldinger's 1954 report (1) that nine percent of the former graduates in his study were employed in off-farm

agricultural occupations supports the theory that off-farm agricultural employment opportunities have been increasing.

The questionnaire-response rates of the graduates classified according to quartile rank in their high school graduating classes indicated that graduates from the top quarter of their classes responded at a much higher rate than did those from the bottom one-fourth. Although the population was reapportioned by post-stratification to compensate for this bias, this finding explicitly implies that other factors also could have influenced the response rate of the graduates. More important, this finding implies that failure on the part of researchers to allow for this bias may introduce error and consequently produce spurious findings.

Of the reapportioned population of graduates, 60.56 percent ranked in the bottom one-half of their graduating classes. Weed (44) found that 66 percent of the graduates included in his study ranked in the lower one-half, and Bittner (3) found that more than one-half of the graduates included in his study had ranked in the bottom one-half of their high school graduating classes. Most of the studies reviewed by the investigator supported the findings of this study that more of the graduates from the lower quarter or

lower one-half of their classes tended to enter farming and farm management, whereas a higher percentage of the graduates from the upper one-half entered off-farm agricultural and nonagricultural employment. These findings indicate that the less capable students are entering farming--an occupation which is becoming increasingly complex, especially in terms of the management functions.

Data regarding the migration of graduates from their home communities indicated that 26.66 percent of the graduates were living outside of Iowa at the time of the study. Howe (23) reported that 25.2 percent of the population of males and females included in his study had migrated out of Iowa, and Newton (31) found that 24.23 percent of his population had left Iowa. Newton's findings also coincided with the findings of this study regarding the percentage of the graduates who had remained in their home community. He found that 57.73 percent had remained in the Newton area, whereas 56.78 percent of the graduates in this study had remained in the same or in a contiguous county.

Bishop (2) found that 81.7 percent of the former Winterset, Iowa, graduates who were farming had remained in the Winterset community as had 42 percent of the graduates who were employed in off-farm agricultural occupations. For the

State of Iowa, as reported in this study. 93.84 percent of the farmers, farm managers, and farm laborers had remained in their home communities and 58.06 percent of those engaged in off-farm agricultural occupations had not left their home communities. These differences suggest that opportunities in farming and off-farm agricultural occupations and migration patterns of the graduates differ by communities, a proposition which also was supported by differences noted in the distribution of the graduates classified by Iowa economic area.

Although a study of the relationship of vocational agriculture to the occupations of the graduates was not a specific part of this investigation, significant differences were found in the classification of the occupations of the graduates grouped according to the number of semesters of vocational agriculture that they had taken. Also, the subjective evaluation of vocational agriculture by the graduates revealed important differences among the agricultural classifications of the graduates. The mean value (3.42) expressed by the graduates in off-farm agricultural occupations suggests that proposed alterations in the basic structure and program of vocational agriculture may enhance the value of this training for these graduates.

In reviewing synoptically the factors related to the graduates in farming and farm management, the findings revealed, in comparison to the other graduates, that these graduates: migrated less extensively; came from home farms of relatively larger sizes with higher level of living indices; were more frequently sons of owner-renters and owners; had mothers and fathers who had had less education; had fewer siblings; participated less extensively in high school activities; ranked lower in their graduating classes; enrolled in fewer semesters of mathematics and science and more semesters of vocational agriculture; and matriculated in a post-high school educational institution less frequently.

In related studies, Erickson (14) and Newton (31) found that graduates from larger home farms tended to enter farming more frequently. Newton also found an inverse relationship between the graduates' quartile rank and their entry into farming.

Salmela (36) concluded from his study that size of home farm was not related to the occupational choice of the graduates. Eggenberger (13) reported, however, that acres operated by the father, years of vocational agriculture, college attendance, and quartile rank were related to the occupational choice of the graduates from West Texas. Hoopes

(21) and Nicol (32) also found an inverse relationship between number of siblings and entry into farming and a direct relationship between the number of sons entering farming and farm-ownership status of their fathers.

The distribution of the graduates in off-farm agricultural occupations indicated that a high percentage of these graduates were classed as professional and technical, managers and proprietors, sales, and operatives. These findings suggest that an educational program encompassing the areas of agricultural economics, sales techniques, and agriculturally oriented science and mathematics would be beneficial to these graduates.

Some of the implications of this study are as follows:

A more definitive classification system is needed to determine and classify those occupations which are off-farm agriculturally related. The classification employed in agricultural education research should be more uniform and less arbitrary to enable more exact comparisons of findings.

Guidance counselors, vocational agriculture instructors, and classroom teachers should be apprised of the factors related to the occupations and the occupational status of their former graduates. This course of action calls for periodic follow-up studies of the graduates from each high

school, and curriculum evaluations and revisions where needed.

Resource inputs into agricultural education should be measured in terms of the needs of the community or area of the state. The findings indicated that the occupational distribution of the graduates from the Southern Pasture area differed distinctly from the occupations of the graduates in the other economic areas. Minor differences in the agricultural classification of the occupations also were noted within the other areas.

Pilot programs are needed to develop an educational curriculum which will be more beneficial to graduates engaged in off-farm agricultural occupations.

High school students should be acquainted with the occupational opportunities in farming and in off-farm agricultural industries. The general education requirements, expected incomes, advancement opportunities and other appropriate information should be made available by vocational agriculture instructors and others acquainted with these areas.

The data collected for this study and the findings resulting therefrom suggest additional needed research:

A study should be made of the educational needs,

opportunities, and trends of Iowa farm-reared youth classified according to the economic area in which they reside. A study of this type should be related to the occupational opportunities as well as the general socio-economic or level of living index of the area.

The migration of Iowa farm youth from their home communities, particularly those in the upper quarters of their graduating classes, should be studied.

A more complete analysis of factors related to and required for specific occupations and well-defined clusters of occupations in agriculture should be performed. The kinds of abilities, vocational interests, personality factors, level of intelligence and other descriptive requisites should be assessed to assist in the counseling of farm youth regarding these occupations.

An investigation of the specific factors influencing entry into farming and off-farm agricultural occupations should be made. Is entry influenced primarily by opportunity? Is scholastic ability or financial resources the over-riding factor? Is it chance or choice?

An evaluation of vocational agriculture, similar to the research conducted by Eggenberger (13), should be conducted in Iowa on an area basis. Former students should be sur-

veyed for a subjective analysis and curriculum specialists should review present programs and assist in designing new programs.

Research should be initiated regarding the establishment of post-high school educational programs for graduates engaged in off-farm agricultural occupations.

A follow-up to this study should be made in approximately five years to identify the occupational trends of these 1950-1954 graduates.

# SUMMARY

The primary objective of this study was to investigate the relationship of selected geographical, environmental, educational and socio-economic factors to the occupations of 1950-1954 Iowa male high school graduates. The occupational status and intercorrelations of these variables also were measured and evaluated.

The study was completed as a part of a research project conducted jointly by the Department of Education and the Agricultural Experiment Station of the Iowa State University of Science and Technology and the Agricultural Education Section, Division of Vocational Education, Iowa Department of Public Instruction.

For the initial collection of educational and biographical data, information was requested from 189 Iowa high schools that had offered an approved program of vocational agriculture during at least one school year from 1949-1950 through 1953-1954. As an additional criterion for selection, the members of at least one of the graduating classes must have had an opportunity to enroll in a three- or four-year vocational agriculture program.

Graduates included in the study were those whose fathers

were farming on the day their sons were graduated from high school or who had farmed during most of the time that their sons were in high school. Graduates who had enrolled in six or more semesters of vocational agriculture also were included in the study. Vocational agriculture instructors from the selected schools were asked to collect the names, mailing addresses, and pertinent educational data about the graduates from the records of the schools.

Data were obtained from 165 or 87.3 percent of the 189 selected Iowa high schools. The mailing addresses of the graduates, where unavailable from other sources, were obtained through the cooperation of the Iowa State Director of the Selective Service System and the secretaries of the county local boards.

The names of 8829 graduates were reported by the participating high schools. Of this total, 548 were deleted from the population due to total incapacitation, unavailable addresses, and failure to meet the specified criteria.

A questionnaire was sent to each graduate requesting information about his home background, education, and occupational status. Of the 8281 graduates from whom responses were expected, 6013 or 72.61 percent returned the questionnaire. An examination of the questionnaires revealed that an

additional 291 of the graduates failed to meet the basic criteria for inclusion in the population. The final population of respondents numbered 5722, and the final response rate was 71.61 percent.

The educational data from the high schools and the information obtained from the graduates were coded and transferred to IBM cards. Frequency counts, tabulations and correlation analyses were computed by the IBM equipment in the Iowa State University Computation Center.

An examination of the initial tabulations of the data revealed biased response rates resulting, in part at least, from differences in the sizes of the high school graduating classes and the graduates' quartile ranks. These biases were reduced by post-stratification of the population, wherein data from the low-responding strata were duplicated randomly and data from the high-responding strata were removed randomly from the population. The final reapportioned population was composed of 6107 graduates.

A frequency distribution of the graduates revealed that 29.63 percent were engaged in farming or were employed as farm managers. Of the remaining graduates, 13.31 were classified as being in off-farm agricultural occupations, 1.93 percent were farm laborers, and 55.13 percent were

employed in nonagricultural occupations. Using the U. S. Bureau of Census occupational classifications, 18.32 percent of the graduates were classified as professional and technical; 29.63 percent were farmers and farm managers; 8.66 percent were managers and proprietors; 6.17 percent were clerical; 5.60 percent were sales; 14.70 percent were craftsmen; 9.84 percent were operatives; 1.61 percent were in service occupations (except private household); 1.93 percent were farm laborers; and 3.54 percent were laborers (except farm and mine).

A chi-square analysis of the distribution of the graduates classified according to the agricultural classification of their occupations and migration from their home communities indicated that highly significant differences existed among the graduates. A higher proportion of the graduates engaged in farming (93.84 percent) remained in their home communities as compared to those engaged in nonagricultural occupations (36.06 percent). The graduates employed in off-farm agricultural occupations also tended to remain in their home communities more frequently than the nonagriculturally employed graduates.

The investigation produced evidence to indicate that the graduates in off-farm agricultural and nonagricultural

occupations were receiving higher incomes as compared to the graduates in farming. The data also revealed that a wider dispersion of incomes existed among the farmers and farm managers as compared to the other classifications of occupations.

The graduates classed as farmers and farm managers expressed "very much" need for a knowledge of agriculture in their occupations. In contrast, the nonagriculturally employed graduates indicated "little" need for a knowledge of agriculture, whereas the graduates in off-farm agriculture occupations responded that a knowledge of agriculture was "much" needed in their occupations.

Except for the graduates classified as farmers, farm managers, and farm laborers, the highest mean need for a knowledge of agriculture was expressed by the graduates classed as sales and as managers and proprietors. Each of these latter classifications as a group indicated "some" need for a knowledge of agriculture in their occupations. The remaining six classifications of graduates indicated "little" or "no" need for a knowledge of agriculture.

A highly significant chi-square value of 2150.097 was derived from the analysis of the distribution of the graduates classified according to the census classification of

their occupations and the extent of their migration from their home communities. In addition to the farmers and farm managers, the graduates classified as operatives, farm laborers and laborers (except farm and mine) tended to remain in their home communities more frequently than was expected. Graduates classed as professional and technical, managers and proprietors, clerical, sales and craftsmen migrated more extensively than was expected.

From the data provided by 5,713 graduates, 49.89 percent were earning annual incomes of between $3001 and $6000. Eleven and eighteen hundredths percent were earning $3000 or less and 11.03 percent were earning $9001 and over in annual incomes. As contrasted with graduates in other census classifications, the graduates classed as professional and technical, managers and proprietors, and as sales workers were earning higher incomes.

The highest mean need for a knowledge of agriculture was expressed by the graduates who were receiving annual incomes of $3000 or less. Graduates who were receiving incomes of between $6001 and $9000 expressed the lowest mean need scale value, whereas an intermediate need value was expressed by the graduates who were receiving incomes of $9001 and over. Among the graduates employed in off-farm

agricultural occupations, those classified as being employed in agricultural educational services tended to receive the highest incomes. These latter graduates also expressed the greatest need for a knowledge of agriculture in their occupations.

Graduates who remained in their home communities reported lower incomes in comparison to those who migrated. Of the graduates who remained in their home communities, 71.65 percent received incomes of $6000 or less, and the remainder received incomes of $6001 and over. In contrast, 41.93 percent of the graduates who migrated beyond a state contiguous to Iowa received incomes of $6000 and less and the remaining 58.07 percent received incomes of $6001 and over.

In analyzing the geographical factors related to the occupations of the graduates, a chi-square analysis revealed that significant differences existed among the actual and expected frequencies of the graduates classified according to the agricultural classification of their occupations and the Iowa economic area in which their high schools were located. The occupations of the graduates from the Southern Pasture area were classed as nonagricultural more frequently than was expected. Fewer of the graduates from this area

were classed as farmers, farm managers, farm laborers and off-farm agricultural employees than was expected. More of the graduates from the Western Livestock and Northeast Dairy areas were classed as off-farm agricultural and more of the graduates from the North Central Grain area were classed as farm laborers than was expected.

As contrasted with the percentages of all the graduates in each of the census classifications, a higher percentage of the graduates from the Western Livestock and North Central Grain areas were classified as professional and technical; a higher percentage of the graduates from the Eastern Livestock area were classified as farmers and farm managers and as craftsmen; more from the Southern Pasture area were classed as managers and proprietors, craftsmen, operatives and laborers (except farm and mine); and a higher percentage of the North Central Grain area graduates were classed as farmers and farm managers.

Graduates from the Northeast Dairy and Eastern Livestock areas tended to migrate less extensively, whereas those from the Western Livestock and Southern Pasture areas migrated more extensively than was expected according to the significant chi-square which was derived. Proximity of the graduates' homes to a city with a population of 10,000 or

more persons on the day of their graduation from high school apparently had little influence on the agricultural classification of their occupations at the time of the study. Likewise, only minor differences existed in the annual incomes of the graduates classified by Iowa economic area.

An examination of the level of living indices of the graduates homes indicated that a higher percentage of those from higher level of living index areas were classified as farmers and farm managers, whereas more graduates from relatively low level of living index areas tended to be classified as nonagriculturally employed. A higher proportion (62.16 percent) of the graduates from the high index townships remained in their home communities, whereas graduates from low index areas tended to migrate, especially to new locations within Iowa.

A chi-square value of 68.064 revealed that significant differences existed among the farm-reared graduates classified according to the agricultural classification of their occupations and the size of their home farms. More of the graduates from the larger home farms (321 acres and over) tended to be classed as farmers and farm managers, whereas more of the graduates from the farms of 160 acres and less tended to be nonagriculturally employed. Nonsignificant

differences were found, however, in the chi-square analysis of the actual and expected frequencies of the graduates classified according to the size of their home farms and the extent of their migration.

More of the graduates whose fathers were owner-renters or owners became farmers than did those whose fathers were employed farm operators or renters only. A higher percentage of the sons of employed operators and renters were classified as off-farm agricultural and nonagricultural employees according to the significant chi-square findings. The farming status of the graduates' fathers apparently had only a minor influence on the migration of the graduates. A chi-square value of 18.033, which was significant at the five percent level, revealed a tendency for the sons of employed operators or renters to migrate more extensively than the sons of the owners or owner-renters.

The formal education completed by the fathers of the graduates tended to be related to the census classification of the occupations of the graduates. A chi-square analysis of the distribution of the census classifications revealed a steady increase in the percentage of the graduates classed as professional and technical was accompanied by an increase in the education completed by the graduate's father.

Conversely, the percentage of graduates classified as farmers and farm managers, operatives, farm laborers, and laborers (except farm and mine) tended to increase with decreases in the educational levels attained by the graduates' fathers. The data also revealed a distinct tendency for the income of the graduates to increase in direct relation to the education attained by the fathers.

The chi-square analysis of the distribution of the graduates classified according to the education completed by their mothers also produced a significant value. A higher proportion (26.48 percent) of the graduates whose mothers attended one or more years of college was engaged in professional and technical occupations than was expected. Likewise, fewer of the sons of mothers who had attended college were farmers and farm managers, craftsmen, and operatives. The annual incomes of the graduates tended to increase with increases in the education attained by their mothers.

A higher percentage of the farmers and farm managers had three or less siblings, whereas a higher percentage of the graduates engaged in off-farm agricultural and nonagricultural occupations had four or more siblings. Thirty and thirty-nine hundredths percent of the farmers and farm

managers had four or more siblings, whereas 36.03 percent of the nonagriculturally employed and 39.09 percent of the off-farm agriculturally employed graduates had four or more siblings.

The number of siblings who had received a college degree apparently was not related to the agricultural classification of the graduates' occupations. Significant differences were noted, however, in the migration of the graduates classified by the number of siblings with a college degree. The graduates tended to migrate more extensively as the number of siblings with a college degree increased.

The graduates classed as professional and technical enrolled in more semesters of mathematics and science as compared to the other graduates. Also, the graduates who had enrolled in more semesters of mathematics and science tended to migrate more extensively than the graduates who had taken less mathematics and science.

Graduates in farming and farm management tended to enroll in fewer semesters of mathematics and science as did those classified as operatives. The farmers and farm managers, however, had enrolled more frequently in a significantly higher number of semesters of vocational agriculture.

The proportion of the graduates classified as professional and technical decreased as the number of semesters of vocational agriculture increased. Of the total population, 49.39 percent had enrolled in seven or more semesters of vocational agriculture. Of the graduates who had enrolled in seven or more semesters of vocational agriculture, 13.80 percent were engaged in professional and technical occupations, 35.51 percent were farmers and farm managers, 14.24 percent were craftsmen, and the balance were distributed throughout the other census classifications. Within the agricultural classification, 13.86 percent of the graduates with seven or more semesters of vocational agriculture were classified as off-farm agricultural, 48.96 percent were non-agricultural, and 2.31 percent were farm laborers. Of the graduates who were classified as off-farm agriculturally employed, 73.80 percent had enrolled in five or more semesters of vocational agriculture whereas 76.42 percent of the farmers and farm managers had enrolled in five or more semesters.

The farmers, farm managers, and farm laborers were the only census classification groups of graduates that indicated vocational agriculture had been of "much" value to them in their occupations. As a group, those engaged in the off-farm

agricultural occupations indicated that vocational agriculture had been of "some" value (3.42) as had their 4-H Club activities (3.06). The graduates employed in nonagricultural occupations revealed that both vocational agriculture (1.91) and 4-H Club activities (1.92) had been of "little" value to them.

An analysis of the migration of the graduates classified according the number of semesters of vocational agriculture revealed that the extent of migration was indirectly related to semesters of vocational agriculture. The need for a knowledge of agriculture, however, was directly related to semesters of vocational agriculture. Forty-six and sixty-four hundredths percent of those with no vocational agriculture expressed at least "some" need for a knowledge of agriculture in their occupations, whereas 37.21 percent of those with seven or more semesters indicated "little" or "no" need for a knowledge of agriculture in their occupations.

The graduates classified as professional and technical and as sales workers reported the highest mean extracurricular activity participation scores, and the lowest mean scores were reported by the farm laborers, laborers (except farm and mine), and operatives. Low activity participation

scores were associated with less extensive migration by the graduates.

A lower percentage of the graduates in the top one-fourth of their graduating classes were in farming and farm management as compared to off-farm agricultural and nonagricultural groups. Conversely, a relatively higher proportion of the graduates in the bottom one-fourth of their classes were farmers and farm managers. Nearly one-half (47.57 percent) of the graduates in the top one-fourth of their classes were engaged in professional and technical occupations.

Migration was directly related to quartile rank. Of the graduates who ranked in the bottom one-fourth, 64.56 percent had remained in their home communities and 78.06 percent had remained in Iowa. In contrast, 38.70 percent of the graduates who ranked in the top one-fourth had remained in their home communities and 62.81 percent had remained in Iowa. Graduates who ranked high tended to receive high incomes.

When classified according to year of graduation, the findings revealed that the older graduates tended to be engaged in farming and farm management more frequently than was expected. Likewise, the older graduates tended to receive higher incomes than the younger graduates. The

younger graduates tended to be employed more frequently as farm laborers and in off-farm agricultural occupations.

A lower percentage of the farmers, farm managers, and farm laborers had matriculated in post-high school educational institutions as compared to the other classifications of graduates. Of the total number of graduates, 16.33 percent had attended Iowa State University and 50.09 percent had not matriculated in a post-high school educational institution.

Seventy-four and eighty-eight hundredths percent of the farmers and farm managers had not enrolled in a post-high school educational institution. Of the professional and technical employees, 55.38 percent had received bachelor degrees, whereas 5.32 percent of the farmers and farm managers and 17.63 percent of all graduates had been awarded bachelor degrees.

The annual income received by the graduates tended to be related directly to the highest certificate or degree that they had attained. Thirty percent of the graduates who had not enrolled in a post-high school educational institution were receiving annual incomes of $6001 and over, whereas 70.92 percent of those who had attained at least a masters degree were receiving incomes of $6001 and over.

Of the graduates who had enrolled in a post-high school educational institution, 10.01 percent of the farmers and farm managers and 26.46 percent of those in off-farm agricultural occupations had pursued an agricultural curriculum. Of the graduates who matriculated in a post-high school educational institution, 19.16 percent had pursued an agricultural curriculum. Thirty-two and fifty-eight hundredths percent of these enrollees became farmers and farm managers, and 32.41 percent were employed in professional and technical occupations at the time of the study. Of the graduates in off-farm agricultural occupations, 25.17 studied agricultural curricula and 52.99 percent did not matriculate in a post-high school educational institution.

A correlation matrix of selected variables relating to the occupations of the graduates revealed that 78 of the 120 intercorrelations were significantly different from zero. Quartile rank was positively correlated with semesters of mathematics (.357); occupational prestige scale value (.335); enrollment in a post-high school educational institution (.336); and participation in extracurricular activities in high school (.261). Semesters of mathematics were positively correlated with enrollment in post-high school educational institution (.245), and occupational prestige scale

value (.228), and negatively correlated with semesters of vocational agriculture (-.243) and semesters of industrial arts (-.207).

Semesters of science were negatively correlated with semesters of vocational agriculture (-.287) and semesters of industrial arts (-.212). Semesters of vocational agriculture also were negatively correlated with semesters of industrial arts (-.380).

The expressed need for a knowledge of agriculture was negatively correlated with enrollment in post-high school educational institutions (-.247). Occupational prestige scale value was positively correlated with extracurricular activity participation (.216); occupational income (.285); and enrollment in post-high school educational institution (.364). Positive correlations between extracurricular activity participation and enrollment in post-high school educational institutions (.238) and between the education attained by the fathers and mothers of the graduates (.393) were derived.

A correlation matrix of variables relating only to the graduates who had enrolled in vocational agriculture indicated that 71 of the 120 intercorrelations were significantly different from zero. The magnitude of the correla-

tions of comparable variables generally were similar to those reported for the total population.

The value of vocational agriculture to the graduates in their occupations was positively correlated with the semesters of vocational agriculture that they had taken (.252) and to their need for a knowledge of agriculture (.797). Value of vocational agriculture was negatively correlated, however, to enrollment in a post-high school educational institution (-.210).

A total of 74 of the intercorrelations of variables relating to the graduates who had participated in 4-H Club activities were significantly different from zero. The value of the 4-H Club activities as expressed by the graduates was positively correlated with their expressed need for a knowledge of agriculture (.701) and with the number of semesters of vocational agriculture in which they had enrolled (.155). Enrollment in a post-high school educational institution was negatively correlated with the expressed value of 4-H Club activities (-.145).

A separate correlation matrix of variables relating to the graduates who were not self-employed produced 86 intercorrelations that were significantly different from zero. Among this group of graduates, quartile rank was positively

correlated with occupational prestige scale value (.433) and occupational income (.257). Likewise, occupational prestige scale value was positively correlated with income (.444) and enrollment in a post-high school educational institution (.500). Post-high school education was positively correlated with occupational income (.246). Job-satisfaction scale values were positively correlated with income (.220); occupational prestige (.215); extracurricular activity participation (.151); need for a knowledge of agriculture (.149); quartile rank (.122); and enrollment in a post-high school educational institution (.115).

A correlation matrix of variables relating to the graduates engaged in farming revealed that nine of the intercorrelations were significant at the one percent level and eight were significantly different from zero at the five percent level. The level of living indices of the graduates homes at the time of their graduation from high school were positively correlated with the annual occupational incomes of the graduates (.123) and their extracurricular activity participation (.093). Negative correlations were derived between level of living indices and size of the graduates' high school graduating classes (-.190); size of the home farms of the graduates (-.163); and the number of acres in

the farms operated by the graduates (-.122). The number of acres operated by the graduates was positively correlated with the size of their home farms (.440).

The quartile rank of the graduates who were engaged in farming was positively correlated with their expressed need for a knowledge of agriculture (.119); extracurricular activity participation (.227); and the size of their graduating classes (.078). Quartile rank was negatively correlated with income (-.084). Income, however, was positively correlated with the size of the graduates' home farms (.112) and their participation in extracurricular activities (.084). Extracurricular activity participation was negatively correlated with the size of the graduating classes of the graduates (-.141).

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# APPENDIX A: CORRESPONDENCE

IOWA STATE UNIVERSITY
of Science and Technology
Ames, Iowa

Department of Education

A study is being conducted jointly by the Department of Education and the Iowa Agricultural Experiment Station at the Iowa State University of Science and Technology and the Agricultural Education Section of the Division of Vocational Education, State Department of Public Instruction, to determine the agricultural competencies needed by male farm-reared high school graduates and factors related to their employment.

The study will involve approximately 14,500 graduates from 197 Iowa high schools during the years of 1950 through 1954. A part or all of your present high school district offered a vocational agriculture program during this period and as a result your school has been selected as one of the schools to be included in the study. The study will involve all farm-reared male graduates regardless of their enrollment in vocational agriculture plus town or city boys who were enrolled in vocational agriculture for six or more semesters.

In order to obtain information directly from the graduates we need to obtain from you and your principal the names, high school records, and present mailing addresses of the graduates.

A separate one-page information form must be completed for each graduate. We are sending you two copies of the form, with instructions, for each graduate. One copy may be retained in your school for the purpose of making a local study of your graduates. The other copy is to be returned to the Department of Education on or before January 15, 1963. Since this information is of a personal nature it will be held in strict confidence.

The results of this study should be of value to you in planning future programs of vocational agriculture and in counseling students interested in agricultural occupations.

Your cooperation will be appreciated. A summary of the study will be available.

Respectfully,

C E Bundy  D L Blake

Clarence Bundy  Duane Blake
Agricultural Education
Co-Directors Project 1253

IOWA STATE UNIVERSITY
of Science and Technology

Ames, Iowa

Department of Education

A study is being conducted jointly by the Department of Education and the Iowa Agricultural Experiment Station at the Iowa State University of Science and Technology and the Agricultural Education Section of the Division of Vocational Education, State Department of Public Instruction, to determine the agricultural competencies needed by male farm-reared high school graduates and factors related to their employment.

The study will involve approximately 14,500 graduates from 197 Iowa high schools during the years of 1950 through 1954. A part or all of your present high school district offered a vocational agriculture program during this period and as a result your school has been selected as one of the schools to be included in the study. The study will involve all farm-reared male graduates regardless of their enrollment in vocational agriculture plus town or city boys who were enrolled in vocational agriculture for six or more semesters.

In order to obtain information directly from the graduates we need to obtain from your vocational agriculture instructor or principal the names, high school records, and present mailing addresses of the graduates.

A separate one-page information form must be completed for each graduate. We are sending to your vocational agriculture instructor two copies of the form, with instructions, for each graduate. One copy may be retained in your school for the purpose of making a local study of your graduates. The other copy is to be returned to the Department of Education. Since this information is of a personal nature it will be held in strict confidence.

The results of this study should be of value to your school in planning future programs of vocational agriculture and in counseling students interested in agricultural occupations.

Your cooperation will be appreciated. A summary of the study will be available.

Respectfully yours,

Clarence Bundy  Duane Blake

Clarence Bundy
Agricultural Education
Co-Directors Project 1253

IOWA STATE UNIVERSITY
Of Science and Technology
Ames, Iowa

Department of Education

January 10, 1963

To: Superintendents of Schools and
Vocational Agriculture Instructors

Gentlemen:

We appreciate the excellent cooperation received in conducting Experiment Station Project 1253 concerning competencies in agriculture needed by high school graduates.

Letters and forms were mailed to schools the week of December 17. We planned to have these materials in the hands of vocational agriculture teachers in advance of the Christmas vacation period. The materials were held up in Christmas mail and in many cases were not delivered in time for instructors to work on them during the vacation period. As a result the January 15 return date is being extended to February 1.

You will find enclosed a brief description of the study and a suggested news article that may be of assistance in obtaining addresses.

We have had numerous requests for additional copies of Form 1. Additional forms are available and are being mailed as requested.

The first completed forms from schools arrived in Ames on January 5. A check on ten schools indicated about six minutes of time was required to obtain data for each graduate.

Questionnaires will be mailed to each graduate and to each employer by us. The initial lists of competencies to be submitted to graduates and employers will be developed by us through the use of several panels of specialists.

The results of this study will be available in bulletin form to all participating schools. The information obtained should be very helpful in planning future programs in vocational education and in providing guidance to high school students considering careers in farming and in nonfarm agricultural occupations.

If you have questions concerning the study feel free to ask for our help.

Sincerely yours,

Clarence Bundy Duane Blake
Agricultural Education, Co-Directors of Project 1253

IOWA STATE UNIVERSITY
Of Science and Technology
Ames, Iowa

Department of Education March 1, 1963

We are pleased to report that the progress of Agricultural Experiment Station Project 1253 is gratifying. Over 110 of the selected group of participating secondary schools in Iowa have forwarded information on approximately 6,000 of their 1950 - 1954 graduates.

As we have indicated previously, the purpose of this project is twofold. First, we plan to identify competencies needed by farm-reared male high school graduates who are farming or are employed in occupations related to agriculture. In order to obtain a sufficient number of graduates who are employed in these various occupations, it is essential that we have a high percentage of returns from the selected school districts of Iowa. Second, we plan to isolate educational, environmental and other factors that are related to the present occupations of these graduates. We feel that this project can be of vital importance in curriculum planning and counseling for many of the future farm youth of Iowa.

As of this date we have not received information from your school district. We again solicit your cooperation in collecting and submitting this information. We realize that you are very busy preparing for the forthcoming FFA contests; we also realize that the collection of these data will require several hours of your time. We are convinced, however, that this project will be extremely beneficial to our profession which has been facing and will continue to face some real challenges.

We hope that you will provide the data from your school district in the very near future. Colonel Glen Bowles, State Director of Selective Service, has <u>authorized</u> the secretaries of the Local Boards (<u>i.e.</u>, County Draft Boards) to provide for this project the high school graduates' current mailing addresses that are unobtainable from other sources. The secretary of your Local Board will have the current mailing addresses for most of the graduates from your district.

Please return the enclosed self-addressed post card at your earliest convenience. Also, feel free to contact us if you have any questions regarding this project.

May we count on your cooperation?

Sincerely yours,

C. E. Bundy D. L. Blake
Project Co-Leaders

Encl.

IOWA STATE UNIVERSITY
Of Science and Technology
Ames, Iowa

Department of Education May 15, 1963

We are now entering the final stages of collecting information on the 1950 - 1954 graduates from selected Iowa high schools for the current Agricultural Experiment Station 1253 Project. We are pleased to report that over 86 percent of the high schools involved in this project have forwarded information on their graduates.

In order to be included in this project, we will need to receive the data from your high school on or before May 22, 1963. It is, of course, important that a high percentage of the population be represented if this project is to be meaningful. (Remember that you may obtain the addresses of your graduates from the secretary of your county's Local Selective Service Board.)

We expect to publish the results of this study in cooperation with the State Department of Public Instruction. Our discussion will include, among other items, an analysis of the data from the participating high schools and a listing of those high schools from which data were not available.

Thank you for your consideration of this matter. We feel that this project has important implications for the future of vocational agriculture in Iowa and throughout the country. We hope that the graduates from your high school will have an opportunity to be a part of this project.

Sincerely yours,

C. E. Bundy D. L. Blake
Project Co-Leaders

IOWA STATE UNIVERSITY
Of Science and Technology
Ames, Iowa

Department of Education
Dr. Ray J. Bryan, Head

Agricultural Experiment Station
Dean Floyd Andre, Director

As a 1950 - 1954 Iowa high school graduate, you were selected as a participant in the Iowa Agricultural Experiment Station Project 1253. You have received a questionnaire and postage-paid return envelope which we would like you to complete and return at your earliest convenience. The purpose of this project, as explained on the questionnaire, is to identify factors related to the occupations of Iowa male high school graduates and to suggest possible changes in our educational programs. Your cooperation is urgently needed if this project is to provide information about the training needs of Iowa youth!

We hope you will be completely candid in answering all questions. The validity of the results of this project will depend, of course, on your frankness and the willingness of you and the other participants to provide the requested information.

Thank you for your consideration. We trust that you will spend a few minutes of your time on behalf of the present and future Iowa high school students. Please let us know if you have misplaced your original questionnaire. We will forward a duplicate copy to your promptly.

Sincerely yours,

C. E. Bundy  D. L. Blake
Project Co-Leaders

Please accept our sincere "thanks" if you have already forwarded your questionnaire.

PLEASE. . . .WE NEED YOUR COOPERATION. We are enclosing another copy of the questionnaire which we sent to you this spring. Your answers to this survey will enable us to compile important information about the factors related to the occupations of Iowa high school graduates. In turn, the results of this project will lead to better educational programs for the young men of Iowa!

Please complete this questionnaire now and return it to us in the enclosed postage-paid envelope.

Thank you.

Sincerely yours,

C. E. Bundy D. L. Blake
Project Co-Leaders

Iowa State University, Ames, Iowa

# APPENDIX B: SURVEY INSTRUMENTS

## Instructions for Completing Form No. 1

General Purpose of Form No. 1: Form No. 1 has been designed to obtain information from selected Iowa high schools on male graduates who graduated with the regular spring semester graduating classes during the five-year period from 1950 through and including 1954 and who meet the criteria listed below.

Graduates Included in the Study: Graduates in this study will include the male graduates from your high school and all other high schools that are now an official part of your school district. Only those graduates who received signed diplomas certifying graduation from high school are to be included. The information requested on Form No. 1 is to be obtained only for those graduates who fall within the following two categories:

> (1) All male graduates whose fathers' largest single source of income was derived from farming at the time of their sons' graduation from high school (that is, the fathers were farmers),
>
> AND
>
> (2) In addition to the group above, all male graduates who enrolled in vocational agriculture for six or more semesters in high school and whose fathers were engaged in occupations other than farming.

Obtaining the Data: Please observe the following rules and policies as you obtain the information for your graduates:

(1) Completeness, legibility and accuracy are of utmost importance if your data are to be usable and objective.

(2) Please complete and return a Form No. 1 for each graduate who falls within the two categories specified above - even though you are unable to locate all of the pertinent information or complete all of the 10 items on Form No. 1.

(3) Please exhaust all possibilities for locating the information for each of your graduates. Inasmuch as we will be sending out questionnaires to all graduates, it is particularly important that you obtain their current mailing addresses.

(4) If you are unable to locate the requested information, please write "not available" in any blank space on Form No. 1. An incomplete blank will lead us to believe that you omitted the blank inadvertently.

(5) In cases of special situations or circumstances, you may write explanatory notes in the margins or at the bottom of Form No. 1 - or you may return a letter of explanation with your completed forms.

(6) You have received approximately twice the number of forms that you will need for this study. If you wish, you may complete Form No. 1 in duplicate with carbon paper and retain the carbon copy for further study or analyses.

Procedure for Completing Form No. 1: Items 1 - 7 Complete items 1 - 7 for each graduate who falls within the two categories listed above under the heading, "Graduates Included in the Study." The required information will be available on you school's permanent records in either your superintendent's or principal's office. The school records should indicate the occupation of each graduate's father. Community resource persons will be helpful in questionable cases. Clerical assistance may be available to aid in the collection of these data.

Item 1. Name Please print each name carefully and completely as indicated.

Item 2. High school from which graduated Indicate the exact name of the high school from which each student was graduated. Please indicate the name of the school at the time of graduation - even though the school's name may have been changed meanwhile due to the reorganization of your school district. (The 1950 - 1954 graduates from your present school district may have been graduated from several different high schools that are now a part of your district.) Also, indicate the year of graduation and the total number of students (male and female) in the graduating class.

Item 3. Intelligence test data Please provide the test data as requested. If more than one IQ test score is available, please provide the information on the test that was administered at the latest date. Be sure to provide all available data; it is especially important, however, to provide the raw score data if local norms (i.e., within your school, county, etc.) were used to compute percentile scores.

Item 4. Iowa Tests of Educational Development Indicate the latest date (year and month, if available) that the ITED was administered to each graduate and the grade he was in on this date. Please provide score #9, which is a composite score of Tests 1 - 8, as a standard score, if available. Otherwise, list the percentile score for #9 - or the composite raw score for Tests 1 - 8 inclusively with an appropriate notation.

Item 5. High school scholastic average Please indicate the final eight-semester grade-point average or final percentile mark for each graduate. Carry the average out to two decimal places (e.g., 2.76). Briefly describe the grading system that was employed by the graduate's high school. (Please make an appropriate notation if evidence is found that a graduate attended two or more different high schools that employed different grading systems). Also, indicate the lowest passing mark in the grading system that was employed.

Item 6. Scholastic rank in class Indicate the graduate's scholastic rank by checking the appropriate blank. The rank in class should be based on the scholastic averages of all members of the graduating class.

Item 7. Semesters completed in each area Please indicate the number of semesters (i.e., approximately 18 weeks of school) completed by each graduate in each of the areas. Units of credit, passing or failing of the courses, etc., are not requested - only enrollment in and completion of courses in the subject matter areas. Each graduate who carried 4 courses each semester should have a grand total of 32 semesters of course work.

Items 8 - 10 The information requested on items 8 - 10 may be available in your school. Perhaps your principal or guidance counselor has maintained a record of your graduates. Much of this information also may be obtained by enlisting the services of key resource persons within your community.

Item 8. If graduate is self-employed Place a check in the box if the graduate is self-employed (i.e., receives his largest single source of income from this employment). Also briefly describe the occupation.

Item 9. Current mailing address As indicated earlier in these instructions, it is imperative that we obtain the current mailing addresses of the graduates. Please use all available resources to obtain each graduate's complete and current address. Classmates, relatives, bankers, elected officials and others who are acquainted personally with the graduates or who know their present whereabouts can be extremely helpful to you.

Item 10. Employer's name and address Please list the name of the employer (and/or the name of the company, if applicable) and his address. This information is particularly necessary if the exact address of the graduate is not available.

And Finally After all the Form No. 1's have been completed:

(1) Check each one for completeness, legibility, and accuracy.
(2) Sign each Form No. 1 and ask your superintendent or principal to sign each one. These co-signatures will add authenticity to the study.
(3) If you have prepared duplicate copies, retain your carbon copy of Form No. 1 for each graduate.
(4) Mail all the original copies of Form No. 1 (and a letter of explanation, if needed) in the return envelope which was forwarded to you.

Thank you for your cooperation.

Iowa State University of
Science and Technology
Ames, Iowa

Agricultural Experiment Station
Project 1253-62
Form No. 1



# COMPETENCIES IN AGRICULTURE NEEDED BY MALE HIGH SCHOOL GRADUATES ENGAGED IN AGRICULTURAL OCCUPATIONS

School Code No._____ Graduate's High School Record

1. Name _____ _____ _____
(Last) (First) (Middle Initial)

2. Name of high school from which graduated _____ Year _____ Total number in grad. class _____

3. General intelligence or scholastic aptitude test _____ Test form or edition _____ Date tested _____
(Name of test)
Percentile score _____ or IQ score _____ Raw score _____ Norms used _____

4. Iowa Tests of Educational Development: Latest date tested _____ Grade _____
(i.e., 9, 10, 11 or 12)
Composite score # 9 on tests 1 - 8 inclusive: Standard score _____
(or) Percentile score _____

5. Final high school grade-point average _____ Grading system employed _____ Lowest passing mark _____
(e.g., A=4, B=3, C=2, etc.)
If grading system is (was) based on percentiles, indicate lowest passing percentile

6. Scholastic rank in graduating class: Top one-fourth_____, second one-fourth_____, third one-fourth_____, bottom one-fourth_____

7. Number of semesters completed in each area:

| | | | |
|---|---|---|---|
| Social science (History, Econ., Psych., etc.) | _____ | Business education | _____ |
| | | Vocational agriculture | _____ |
| Mathematics | _____ | Industrial arts | _____ |
| Science | _____ | Other areas: | |
| English | _____ | _____ | _____ |
| Foreign language | _____ | _____ | _____ |
| | | Grand total semesters (Usual minimum = 32) | _____ |

8. Check if graduate is self-employed ☐ _____
(Occupation, if self-employed)

9. Current mailing address _____ _____ _____
(No. and street or RFD #) (Post office) (State)

10. Present employer, if obtainable _____
(Name of person and/or company)

Employer's address _____ _____ _____
(No. and street or RFD #) (Post office) (State)

_____ _____
(Vocational Agriculture Instructor) (School Superintendent or Principal)

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY
Ames, Iowa

Code No. _____

Department of Education

Please make corrections if your name and/or address are misspelled or otherwise incorrect

We need your help. We hope you will be willing to spend a few minutes of your time in answering this questionnaire. The information that you supply may provide a more adequate basis for the educational and vocational guidance services of our Iowa schools.

You are one of the 1950-1954 Iowa high school graduates who has been selected to provide information for this project. Your cooperation will aid us in: (1) identifying factors that are related to the occupations of Iowa male high school graduates, and (2) suggesting possible changes in our educational programs for the young men of Iowa. This project is being sponsored jointly by the Agricultural Experiment Station and Department of Education at Iowa State University and the Agricultural Education Section, Division of Vocational Education, of the State Department of Public Instruction.

The success of this project depends on your cooperation. Please complete and return this questionnaire in the enclosed postage-paid envelope at your earliest convenience.

Your assistance will be appreciated.

Sincerely yours,

C. E. Bundy D. L. Blake
Project Co-Leaders

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## QUESTIONNAIRE

(Note: Your answers will be held strictly confidential; they will be used for statistical purposes only!)

Please read each item carefully. Decide on your answer to each item - then place the number that corresponds to your answer in the box at the left of the item.

A. What is your present marital status?
[ ] (1) Single (2) Remarried (3) Separated (4) Widowed (5) Divorced (6) Married

B. If you are married or remarried:
[ ] years a. How many years have you been married?
[ ] b. Did your wife grow up on a farm? (1) Yes (2) No
[ ] c. Did you and your wife attend the same high school? (1) Yes (2) No
[ ] children d. How many children do you have?

C. Have your or your wife inherited farm land?
[ ] a. (1) Yes (2) No
[ ] b. If "yes," how many acres?
(1) 80 acres or less (2) 81-160 acres (3) 161 acres or more

D. How many brothers and sisters do you now have?
[ ] brothers
[ ] sisters

E. How many of your brothers and/or sisters have or are now enrolled in college?
[ ] brothers and/or sisters

(Continued on next page)

F. How many of your brothers and/or sisters have received a college degree?
[ ] brothers and/or sisters

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G. To what extent is a knowledge of agriculture needed in your present primary occupation (that is, the occupation from which you receive your largest single source of occupational income)?
[ ] (5) Very much (4) Much (3) Some (2) Little (1) None

H. To what extent is your high school vocational agriculture training (including FFA) of value to you in your present primary occupation?
[ ] Check here if you did not take vocational agriculture in high school.
[ ] (5) Very much (4) Much (3) Some (2) Little (1) None

I. To what extent is the training that you received in 4H Club activities of value to you in your present primary occupation?
[ ] Check here if you did not belong to a 4H Club.
[ ] (5) Very much (4) Much (3) Some (2) Little (1) None

J. To what extent did you participate in high school extracurricular activities compared to your classmates (consider both number of activities and positions of leadership)?
[ ] (5) Very much (4) Much (3) Some (2) Little (1) None

K. If you are now employed - but not self-employed in your primary occupation, please respond to this item. If you are self-employed or not employed - go on to item L.
Please read the following statements carefully. Decide which of the numbered responses most closely expresses your feelings toward your present primary occupation or your employer. Place the number corresponding to your "response choice" in the box at the left of each item. Your responses will be held strictly confidential!

The numbers and response choices for the 8 statements below are as follows:

| 5 = Strongly agree | 4 = Agree | 3 = Neither agree nor disagree | 2 = Disagree | 1 = Strongly disagree |
|---|---|---|---|---|

Statements related to your present primary occupation:

[ ] a. The company recognizes merit and rewards it.
[ ] b. I am well satisfied with my progress in the company.
[ ] c. Statements made at the time of hiring and subsequent job experiences are in good agreement.
[ ] d. I am satisfied with my prospects for promotion.
[ ] e. I feel confident that I will be considered for any position for which I am qualified.
[ ] f. I am satisfied that my job utilizes my training and capabilities very well.
[ ] g. Management keeps me informed about things that affect my welfare.
[ ] h. I believe the welfare of the employee is carefully considered before changes are made.

L. On the day you were graduated from high school:
[ ] a. Was your actual father living? (1) Yes (2) No
[ ] years If "yes," what was your father's age on that date?
[ ] b. Was your actual mother living? (1) Yes (2) No.
[ ] years If "yes," what was your mother's age on that date?
[ ] c. Was your mother or female guardian employed other than as a housewife on that date? (1) Yes (2) No
[ ] ← If "yes," was she employed full time? (1) Yes (2) No
d. How many of your brothers and/or sisters had previously or were enrolled in college on that date?
[ ] brothers and/or sisters
e. How many of your brothers and/or sisters had received a college degree prior to that date?
[ ] brothers and/or sisters

M. How many years during your high school career were courses in vocational agriculture available to you?
[ ] (1) 0 or none (2) 1 year (3) 2 years (4) 3 years (5) 4 years

N. At the time you were graduated from high school, did you want to begin farming?
[ ] a. (1) Yes (2) No
[ ] b. If "yes," and you did not begin farming immediately, what was the major reason?
(1) No farms available
(2) Shortage of capital
(3) Both (1) and (2) above
(4) Parents did not want me to farm
(5) Poor health
(6) Entered military service or college
(7) _____ (Other reason - please specify)

(continued on next page)

O. What principal factor led to your selection of your present primary occupation?

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- [ ] (1) Counsel of parents or relatives
- (2) Counsel of friends
- (3) High school career day
- (4) Counsel of high school teachers
- (5) Training received in high school
- (6) Formal training beyond high school
- (7) Military service experiences
- (8) Expected monetary rewards
- (9) Previous work experiences
- (10) Chance rather than planning
- (11) _____ (Other factor - please specify)

P. On the day of your high school graduation, where was your home or place of residence located?

- [ ] a. (1) On a farm (2) In a town or city (3) _____ (Other - please specify)
- [ ] b. If "in a town or city," what was its approximate population?
- c. In what township and county was your home located on that date?

_____ (Township) _____ (County)

Q. How near was your home or place of residence to a city with a population of 10,000 or more persons on the day of your high school graduation?

- [ ] (1) Within the town or city
- (2) 1 - 20 miles
- (3) 21 - 40 miles
- (4) 41 - 60 miles
- (5) 61 - 80 miles
- (6) 81 or more miles

R. Please circle the highest grade in school completed - and indicate the highest college degree, if any, attained - by your parents or guardians as of the day you were graduated from high school:

Father: 3 4 5 6 7 8 9 10 11 12 College: 1 2 3 4 Over 4 _____ (Highest degree attained)

Mother: 3 4 5 6 7 8 9 10 11 12 College: 1 2 3 4 Over 4 _____ (Highest degree attained)

S. What was your father's or guardian's primary occupation (that is, the occupation from which he received his largest single source of occupational income):

a. During most of the time when you were in high school? _____

b. On the day you were graduated from high school? _____

c. If your father's or guardian's primary occupation was farming on the day of your high school graduation:

(a) How many acres did he operate?

- [ ] total number of acres

(b) This total included:

- [ ] acres owned
- [ ] acres rented

T. Have you attended or are you attending a technical, vocational, trade, commercial or military school or a junior college or a four-year college or university?

- [ ] a. (1) Yes (2) No

b. If "yes," please describe your attendance at each school and/or college:

| Name of school or college | Dates of attendance (Months & years) | Curriculum or field of study | Certificate or degree |
|---|---|---|---|
| | to | | |
| | to | | |
| | to | | |

- [ ] Check here if you are not now employed - then go on to item U.

c. If you have attended a school or college beyond high school, to what extent is this training of value to you in your present primary occupation? (Please indicate the name of each school and/or college attended - then place your choice of the numbered responses in the box at the left of the name of each school and/or college attended.)

- [ ] _____ (School or college): (5) Very much (4) Much (3) Some (2) Little (1) None
- [ ] _____ (School or college): (5) Very much (4) Much (3) Some (2) Little (1) None
- [ ] _____ (School or college): (5) Very much (4) Much (3) Some (2) Little (1) None

(Describe additional schools on separate page, if necessary)

(Continued on next page)

U. Starting with your present primary occupation (that is, the occupation from which you receive your largest single source of occupational income), list all primary occupations or jobs you have held for 6 months or longer back to the day you were graduated from high school. Include time spent on active military duty. Also, indicate if you are not now employed.

| | Specific job or kind of work | Name of employer (Please indicate if self-employed) | Dates of employment (Months and years) |
|---|---|---|---|
| Example → | bank teller | Smithville Bank | Jan. '58 to Feb. '63 |
| Present primary occupation | | | to |
| | | | to |
| | | | to |
| | | | to |
| | | | to |
| | | | to |
| | | | to |
| (Continue occupational history on separate page, if necessary) | | | |

V. Briefly describe the nature of your work and the duties you perform in your present primary occupation: _____

_____

W. If you are not self-employed in your primary occupation, what is your present employer's address? _____ (Street and number) _____ (Post office) _____ (State)

X. If your present primary occupation is FARMING:

☐ Check here if your primary occupation is not farming - then go to item Y.

☐ acres a. How many acres do you operate?

b. Your 1962 livestock program included: (Indicate total number of head in your farming operation for the entire year.)

☐ Beef cattle ☐ Hogs ☐ Poultry

☐ Dairy cattle ☐ Sheep

_____ (Other - please specify)

Y. If your present primary occupation is not farming - but is RELATED TO AGRICULTURE, please check ( √) the agricultural products, processes or services below that pertain directly to your primary occupation:

☐ Check here if your occupation is not related to agriculture - then go to item Z.

_____ Farm implement and/or equipment
_____ Feed and/or grain
_____ Fertilizer
_____ Seed
_____ Nursery and/or greenhouse
_____ Livestock marketing
_____ Livestock processing
_____ Poultry marketing and/or processing
_____ Dairy foods marketing and/or processing
_____ _____ (Other agricultural product, process or service)

Z. a. Please indicate your approximate yearly net income before taxes and other deductions. Do not include your wife's income, if any, or income obtained by other members of your family.

$

b. Approximately how much of your yearly net income indicated above is obtained from sources or occupations other than your primary occupation?

$

(This information, as all other, will be held strictly confidential! It will be used for statistical purposes only.)

Thank you for your cooperation

Please return this questionnaire to:
Department of Education
Iowa State University
Ames, Iowa